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THE MAGAZINE OF Fantasy & Science Fiction

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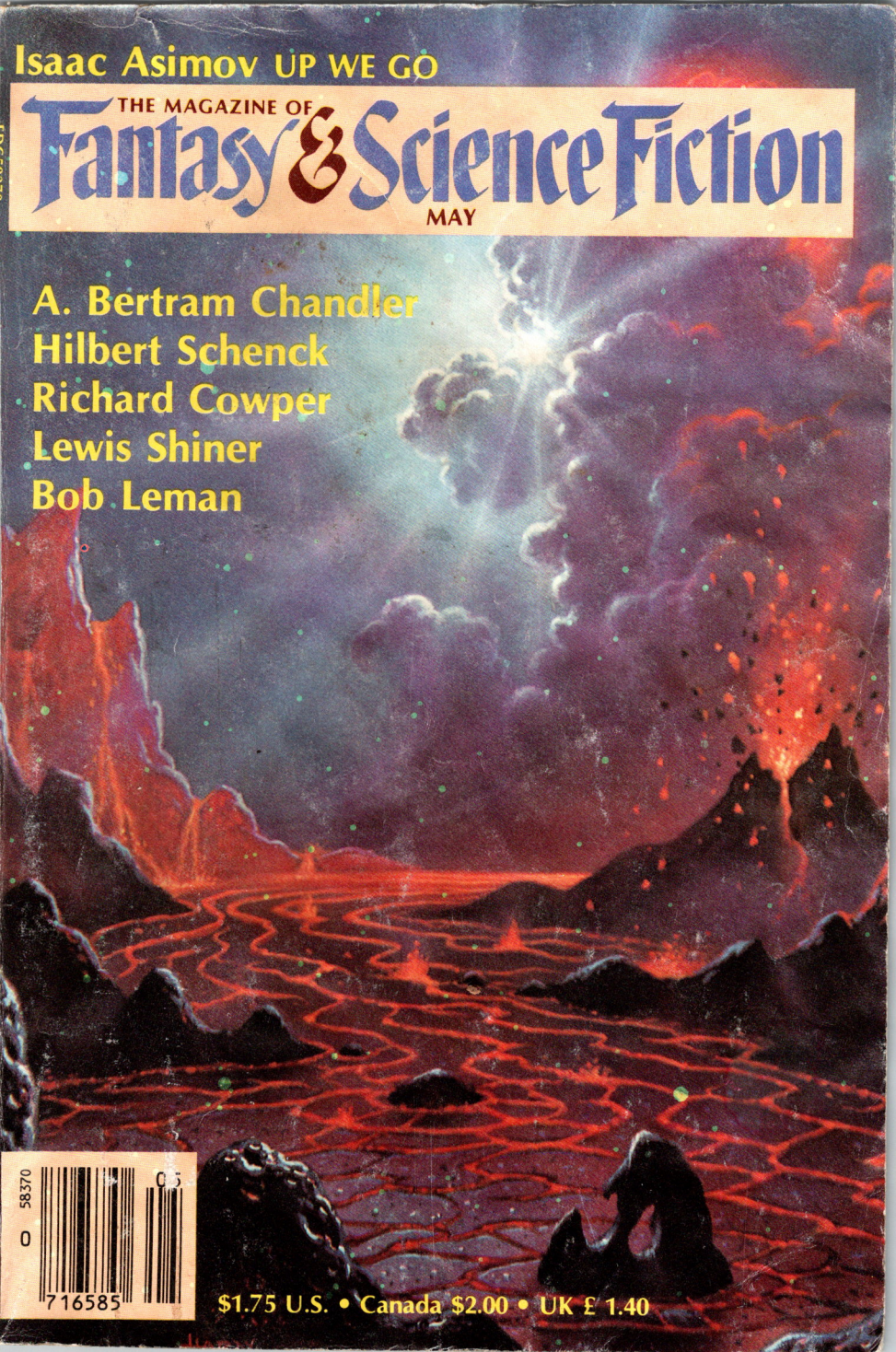

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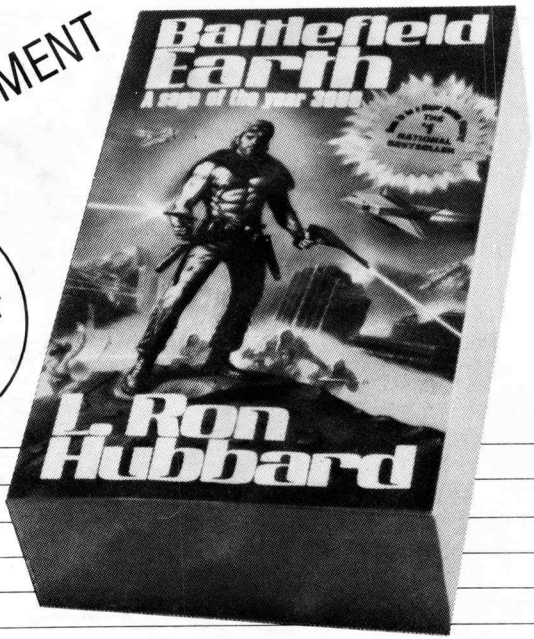

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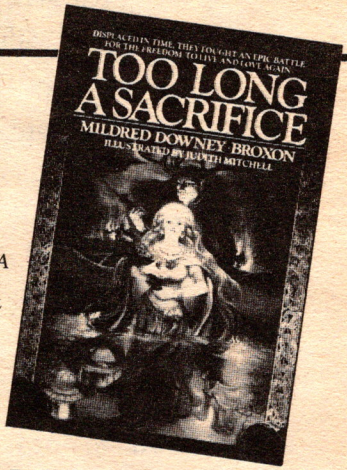

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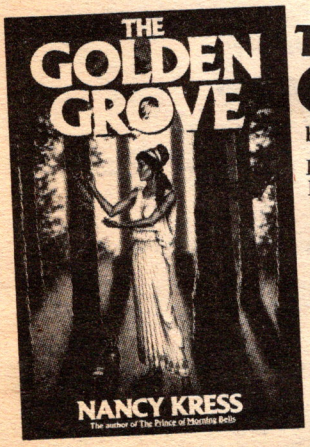

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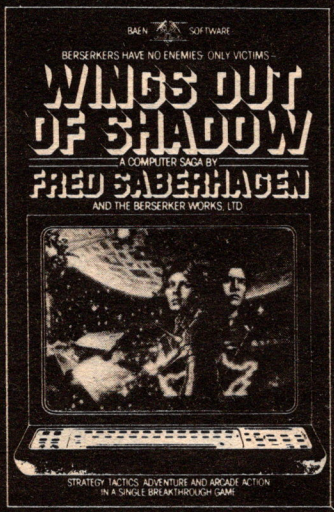
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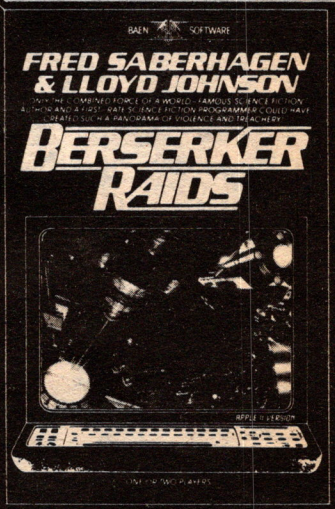

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Bob Leman ("Unlawful Possession" September 1983) is back with a fascinating story that traces the evolution of a vampire — from a wild creature of the Appalachian forest to a millionaire Harvard graduate — and makes some surprising additions to the legend along the way.

The Pilgrimage of Clifford M.

BY

BOB LEMAN

A number of colleagues have suggested that my paper, "The Case of Clifford M.," might well be of interest to the general public if it were recast in language less technical than that of the original. What follows is an attempt to accomplish such a revision. I have expanded the paper in one respect, by giving a brief summary of biological information that did not have to be set out for the original audience, and pruned it in others, chiefly by omitting graphs and tables and conclusions that are of interest only to the specialist.

For an understanding of the case of Clifford M., it is necessary, first of all, to be aware of the natural processes involved in the reproduction of these creatures. There is a widespread belief that vampires create others of their kind by forcing a human being to ingest vampire blood, thus ensuring that after the human has died of the vampire's leeching, he will rise again as a vampire. Such a belief is sheer superstition. Those who die of a vampire's depredations are permanently dead, and, in any case, vampires are mammals — of a sort — and they are born as other mammals are born. With, of course, certain differences.

Vampires bring forth young at intervals of approximately two centuries, and the young are born in litters numbering from eight to twelve. The female has ten breasts, and if the litter numbers more than ten, those pups who lose in the struggle to obtain one of the dugs must perish. If you are at all acquainted with the canonical literature, you will recall that no one has ever seen an adult vampire without clothing. The reason is that since vampires customarily masquerade as human beings, the female vampire's extra breasts (as well as certain oddities

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of the male genitalia) must be kept hidden. In recent years there have appeared some popular apocrypha in which vampires disport sexually with human beings in a more or less normal manner. Such connections are of course quite impossible, and writings describing them are pure works of the imagination.

The gestation period of the vampire has not been fixed with accuracy, but it is almost certainly a very long one — possibly as much as a decade. The young are very tiny at birth, weighing, as a rule, no more than half a pound, and they bear little resemblance to the adult creature. They resemble, as a matter of fact, tadpoles with rudimentary limbs, or perhaps fetuses. (There is a theory, with a certain amount of evidence to sustain it, that the remote ancestors of vampires were marsupials.) The most noticeable feature of these vampire pups is their teeth. They are born fully dentate, and at first glance a newborn pup appears to be all mouth. After they are born they wriggle to a teat and attach themselves to it by means of those extraordinary teeth, and there they remain for a period of two years or more, during which time the dam is nourished by human blood carried to her by one of the males, which may or may not be the sire of the litter. This nourishment is fed her by the same method that birds use to feed their young, a procedure that requires a strong stomach to contemplate. It is worth noting that throughout the time she is suckling the young, the female feeds entirely on human blood, although under ordinary circumstances the vampire requires a human victim for only one feeding out of each dozen or so, and can utilize almost any warm-blooded creature for the remainder of its diet.

Newly weaned pups also are fed on pure human blood for a time. The weaning is sudden and summary: the mother simply pries their mouths open and separates them from herself. She does this very carefully, because upon separation from the teat the savage little mouths begin to snap viciously, in a reflex action. An insensible human being is furnished for these occasions, and the mother places the snapping infants, one by one, upon this unconscious victim. The reflex causes the jaws to bite, and when there is flesh for the jaws to close upon, a further reflex causes the pups to begin to suck. For the first time they taste fresh human blood, and they are thenceforth doomed to a periodic need of it.

The pups at this stage of their development still have disproportionately large heads, and mouths that are disproportionately large even for those heads. Their limbs are by now almost fully developed, but their muscular coordination is poor, and they are, except for the powerful jaws and ferocious teeth, almost helpless. At this age they are covered by coarse black hair, which they will lose by their fifteenth or sixteenth year, except for that on the

head. (Male vampires have no facial hair. Stoker gives Dracula a moustache, but this is only one of many errors in Stoker's work.)

Once the pups are weaned, the female begins to join the males in the hunt, and each night the young are left to themselves until, at some time prior to sunup, one or another of the elders returns to bring them nourishment. The pups are not subject to the coma that claims full-grown vampires between daybreak and sunset, but they tend to be lethargic during those hours, and the tendency increases as they grow older. The ability to assume the form of a bat, or of dust motes, appears to be a skill that is not learned until adolescence or later. The age at which adolescence customarily occurs has not at this time been precisely determined.

Our earliest glimpse of Clifford M. comes from a packet of half-literate letters written in the 1880s by a young woman named Dulcie Fimber to her affianced husband. Both of these young people were from Comber County, a mountainous jurisdiction located near the point where Virginia, Tennessee, and Kentucky come together; but the young man had gone off to work in the mines for a year to earn enough money to furnish a cabin for his bride, and Dulcie, who still lived at home with her parents and a sizable clutch of younger brothers and sisters, wrote him weekly.

The reference in these letters to "Ossie's monkey" are almost certainly about Clifford M. Ossie Fimber was Dulcie's brother, a boy of fourteen or fifteen at the time of her writing. By filling some gaps in the story sketched in the letters, and by making a few inferences, we can arrive at an account of the circumstances of the discovery of Clifford M. that cannot fail to be very close to the facts.

Young Ossie was a wanderer and an excellent hunter. From the age of eleven it had been his habit to take his rifle and disappear into the steep forest for days at a time, always bringing home substantial quantities of game for the family table. As he grew older, his absences became longer, and the range of his wanderings increased, so that the cave he discovered may have been as far as fifty miles from the parental cabin. He found himself one day being soaked by a prodigious rainstorm, and took shelter under a rock ledge. At the back of it was a low opening into which he poked his head and shoulders and satisfied himself it was a cave. He made note of its location, and on his return trip he undertook to explore his discovery.

It was not a complex or dangerous cavern, at least at the depth to which he penetrated. That was not, however, a great distance, because when he discovered the creatures he went no farther. He was inching down a slight slope with his resinous chunk of pine redly and smokily lighting his way, when he saw the eyes to his right, close

at hand, like a bank of glowing coals. He recoiled and then froze. The eyes did not move. There were eight pairs of them, or nine. He advanced his torch a foot or so. Still no movement. He edged forward until the faces were illuminated, and then froze again, staring.

He was a mountain boy, and a hunter, and there were things he knew by instinct. He was aware at once that these things were some sort of cubs or pups, and where litters of young were found, the mother was likely to be nearby, ready to attack to defend her get. He was very curious about these creatures — he had never seen anything like them — but there was danger here. He began cautiously to move backward, and as he did so, the eight or nine sets of feral teeth that had confronted him in the torchlight all began to snap, making a frighteningly loud noise in the narrow confines of the cave. Then he saw with horror that they were crawling out of the niche where they had been huddled together, and were moving toward him. They moved in an ill-coordinated and inefficient way, but the small red eyes were pitiless, and the evil pointed teeth snapped with hot rapacity, and the clumsy forward movement betokened, he thought, a mindless determination to devour his flesh.

He backed off hastily, and they followed, wallowing along the rocky floor and emitting little moaning noises of greed. His retreat reached a spot where the passage widened and the ceiling rose sufficiently for him to stand. He stared at them from his full height, and as he did so he was suddenly swept by a powerful wave of disgust and revulsion and rage. He dropped his torch, reversed the rifle, and began to pound at them with the butt, caught up in a frenzy of loathing. He never afterward knew how long he pounded them, but when his frenzy had passed there was no movement on the floor of the cave. He remembered the mother then, and he grabbed his torch and plunged into the passage that led to the outside.

The passage was low and narrow, compelling him to eel along on his belly, and there was no way for him to look back when he became aware that something was dragging at his heel. He could only squirm along at the best speed he could manage, whimpering and expecting great teeth to close upon his hindquarters at any moment.

He burst out of the cave into a blinding glare of noontime sunlight and instantly whirled to look at the mouth of the cave. Nothing emerged. He let out his breath in a great sigh of relief, and as he did so he realized suddenly that the drag at his heel was still there. He looked down. One of the creatures had locked its teeth in the heel of his boot, and was futilely trying to suck nourishment from the hard leather. It had curled into a ball in the bright sunlight, and its eyes were squeezed shut, but the teeth remained fixed. The thing

was about two feet long; it was entirely covered with hair and had four spidery limbs, two of them obviously arms. Shuddering, Ossie kicked off his boot. The creature remained clamped to it, still curled up in its ball.

Ossie now had a problem: it was imperative that he put distance between himself and the cave as quickly as possible, because the mother was likely to turn up at any moment; but there was no possibility at all that he could make the long walk home without his boot, and he did not quite see how he was going to recover it. He had a healthy respect for teeth that could sink themselves to the gum line in the rocklike leather of a bootheel.

He had with him a tough canvas bag for carrying small game, and it occurred to him that the bag might protect his hands while he dragged the thing off his boot. He hastily dumped out the squirrels and rabbits he was carrying home, and began to puzzle out the best method of folding the bag for purposes of grasping the creature.

One of the squirrels had fallen near the boot, and with a movement almost too fast to be seen the teeth released the bootheel and snapped into the squirrel. Then the creature became as still as before. Ossie put on his boot, shoved his game into the bag, and then, moved by impulse, took a stick and lifted the pup, squirrel and all, and dumped it into the bag. If it turned mean, it could easily be clubbed to death through the bag, and if it remained inert, he could study it at his leisure at home. He walked all night, and it is probably as well that he did so, since at sunset the adult vampires must have awakened and discovered their dead children.

There was a cage at the cabin, used from time to time to confine captured raccoons, and Ossie dumped the entire contents of his bag into it and hastily closed and fastened the door. His captive had transferred its bite to one of the rabbits. Two of the squirrels were only bones. From the time of weaning vampires can digest meat, and indeed it constitutes the major part of their diet until adolescence, after which they must subsist entirely on blood, although it need not be human blood at every feeding.

That cage was Clifford M.'s home for a number of years. There is extant a clipping from the weekly paper then published at the county seat, bearing a date of full five years after Dulcie first mentioned "Ossie's monkey." This newspaper story is headed, "A strange animal at the Fimber farm," and it describes Ossie's captive as "evidently some sort of ape or monkey." It is apparent from this report that Clifford M. was at that time beginning to lose his hairy coat, and that the intimidating baby teeth were being replaced by adult teeth, which are indistinguishable from human dentition to the casual eye. We may conclude from this that he was probably around fifteen years old, and his size at the time, as

described in the newspaper ("about as large as a five-year-old child"), confirms this estimate.

Shortly after the appearance of this newspaper story, Clifford M. made his escape, after taking the life of his first human victim. Early one morning Ossie's father found the lifeless, drained body of his son lying beside the open, empty cage, and at this point we lose sight of Clifford M. for something more than seven years. It is, however, made clear by subsequent events that he was simply a wild animal during those years, ranging through the dark Appalachian forest, living on the meat of small creatures, and from time to time — there is, of course, no way to determine how often — draining a human being of the blood that was necessary for his survival.

In 1906 a book titled *The Wild Boy of Johnson County* was published (New York: Thomas Collier's Sons), and in 1958 there was a second edition from the same firm, retitled *Harry, an American Feral Child.* This book, by the Reverend Llewellyn Crockett, is an account of the winning over to human behavior of a child who had been, as it was thought, reared either by wild animals, or altogether by himself.

A party of hunters, camping in the woods in the autumn of 1898, captured the wild boy as he was bent over one of the sleeping men for a purpose they were unable to fathom, but that is of course plain to us. They were forced to bind him to ensure their own safety, after which they carried him to Lexington and turned him over to the authorities. The Reverend Mr. Crockett, rector of St. Mark's in that city, who had been trained as an educator before he took holy orders, saw in the beastly waif an opportunity both to do the Lord's work and to put into practice his theories of pedagogy. He had no trouble persuading the authorities to turn the boy over to him, and he took him off to the rectory.

According to Crockett's account, the boy possessed a high native intelligence, and very quickly learned to wear clothes and to talk. Crockett named him Harry, for no reason that he left a record of. The Crocketts were childless, but it does not appear from the book that they ever felt any genuine affection for Harry, and indeed it takes very little reading between the lines to infer that despite themselves they found the boy's presence to be distasteful. From our vantage point, we can discern the reason, and praise their perception, but it is clear that they flagellated themselves for their unchristian feelings.

The Crocketts guessed his age to be ten or eleven when they took him in, but in fact he was probably twenty-three or twenty-four, which would have made him thirty or so at the time he once more disappeared. At that time these good people believed him to be seventeen or eighteen, and the book repeatedly observes that he appeared to be even younger than that.

But his seven years with the Crocketts did educate him very well, for the time and place. After three years of private tuition at the rectory, Father Crockett entered him at the grade school, which within a couple of months concluded that it had nothing to teach him, and passed him on to the high school, where he unquestionably would have been graduated as valedictorian — if he had not killed Mrs. Crockett and disappeared a month before graduation day. His education in manners, poise, dress, and other wordly matters was no less successful, and it appears that everyone he met found him to be a most admirable, if not (when you came right down to it) very likable, young man. Those who knew where he had come from viewed him as a highly remarkable freak, a judgment that in fact came much closer to the truth, and was, as we shall see, how he saw himself.

He left behind him in Lexington a brokenhearted old man and the exsanguinated corpse of a good woman who had tried to behave like a mother to him. He took with him his clothes, ninety-seven dollars stolen from the desk in the rectory study, and a conviction that he was different from everybody else in a great many ways.

Because he did not know what he was, you see. His memories (as we know from the journal now in Dr. Burbank's possession) began in the cage at the Fimber farm, and those early memories were the merest flashes. He could not remember that he had once been as hairy as a monkey and had teeth as ugly as a shark's. He thought he was a human being, and believed he was a freak. When puberty came, and his genitals changed, he was obviously and blatantly a freak, and his mental processes began to be those of a predator.

But he did not reach puberty for at least another eleven years. We can be reasonably sure of this because he was graduated from Harvard in 1916, which could not have happened unless he attended classes. After puberty a vampire must lie comatose during the daylight hours, and university classes are a daytime pursuit; so it must have been at some time after June 1916 that he reached adulthood and became prey to certain imperious needs that quite obviously had no chance of fulfillment, needs that were even stronger than his periodic, altogether irresistable urge to drink human blood. After puberty he recognized himself for a monster, and that was when he undertook to create for himself a way of life that would — he hoped — make it possible to satisfy his needs.

We know nothing of his activities during the five years that followed his flight from Lexington, except that they somehow brought him some money. Our next actual sight of him is in 1910, when he registered as a freshman at Corinthia College, a small sectarian institution in Fowler, Illinois. He registered as Clifford M., which was, as far

as we know, his first use of the name he was to use thenceforth. He provided spurious information about his previous life and education, but he had ready cash for the tuition fees, something very rare in the experience of the bursar of Corinthia College, and his credentials were unexamined.

It is apparent that Corinthia was only a means to an end; he left after two years, carrying with him glowing letters of recommendation and a commendable record of his studies; and with these he achieved matriculation at Harvard. He entered as a freshman, remained for the usual four years, and was graduated, cum laude, in 1916.

There is one curious circumstance in his Harvard years: his arrival had been preceded by letters to the ladies of Boston from Mrs. Gaines Sturdevant of Richmond, a lady of the very highest connections, and Clifford M. found in his mailbox as many invitations to the social events of the fall and winter as any freshman at Harvard. We shall never know how he prevailed upon Mrs. Sturdevant to write these letters — or even how he met her — but two of these letters have been discovered. The parts of them that are of interest here are identical, and give a highly romantic, and of course wholly fictitious, account of Clifford M.'s background and family. It appears that these letters were plausible enough to persuade the mothers of Boston debutantes that Clifford M. would be a good catch. Obviously, he never pursued such opportunities.

We must at this point pause to consider just what it was that he was up to. Why Harvard? What was the purpose of the devious entry into Society? What plans had he laid?

Reflection upon these questions, in the light of present knowledge of his subsequent actions, leads to the conclusion that he was concerned solely with making acquaintances who could further his plan to acquire a fortune. Upon graduation he immediately found employment in a prestigious Wall Street brokerage house, a post he could never have achieved without "connections," and he was immediately taken under the wing of the senior partner, who was pleased to teach him the tricks of the trade. He remained with the firm for two years, and then suddenly resigned, at that time he began to acquire a reputation in New York as an eccentric. We may assume that he became an adult about then, and was thenceforth comatose during the daylight hours. Thereafter his Wall Street career was managed solely by correspondence, undoubtedly because he was always unconscious during the hours the stock exchange was open.

He achieved a brilliant success, however, and by 1922 he had amassed a truly large fortune by speculation. He then retired, and removed himself to an ugly large house in the anthracite regions of Pennsylvania, which he purchased from the estate of a deceased coal baron. At this time he began the

quest that was to occupy him for the next sixty years.

It is clear that at some point between the Harvard years and his retirement from business he began to suspect his true nature. Records in the files of the Saltzman bookstore in Greenwich Village, very kindly made accessible by Mr. David Saltzman, show that Mr. Saltzman's father, the then proprietor, corresponded regularly with Clifford M., and that Clifford M. commissioned the elder Mr. Saltzman to scour the book world for volumes relating to vampirism, lycanthropy, and kindred occult matters. Through study of these books Clifford M. was able to arrive at an explanation of his strange impulses and curious history, and at an acceptance of the fact that he was not a human being, but another kind of creature — very probably a vampire.

For a time he kept a journal recounting the measures he was taking and the invariable failure of his efforts. This journal was discovered by, and is now in the possession of, Dr. E. M. Burbank of the Grailing Foundation, and is available for examination by qualified scholars. We discover from the journal that Clifford M. subscribed to every newspaper published in the United States and Canada, and employed a considerable number of people — retired schoolteachers for the most part — to read all of these papers carefully and to clip any matter relating to inexplicable deaths and disappearances under certain circumstances. He placed in charge of the office where these people worked an alert young man named Robertson, to whom he confided that he believed in vampires and werewolves (he added astrology, theosophy, and vegetarianism for verisimilitude) and that he was seeking proof of their existence. Robertson, knowing the purpose of the search, was able to select from the sea of clippings those items offering hope, and to dispatch private detectives to make a preliminary investigation of the occasional likely occurrence. Robertson also stayed in touch with Saltzman, in a continuing search for books that bore on the matter, and kept a number of graduate students in pocket money by commissioning work in the great libraries.

During the first ten years of the search, there were seven incidents that seemed to Clifford M. to be worthy of investigation, but all of them proved, in the end, to be ordinary murders or suicides or kidnappings. The twenty years following were the years of the Great Depression and the Second World War, with great numbers of people in restless movement in novel patterns, and the incidence of cases requiring his attention increased; but again nothing was found. Robertson had by now contrived a pipeline into the national network by which police departments exchange information, and during the fifties and sixties the number of likely prospects went up to several per year, although the number

of successes remained at zero.

Clifford M. was by this time frequently tempted to give up his search, almost persuaded that his conviction that he was a vampire was nothing more than the delusion of a lunatic. The loss of consciousness during the daylight hours might be only a symptom of an illness, he thought, and his strange organs of reproduction nothing more than a mistake of nature, and his terrible need of blood just criminal insanity. But these thoughts would not stand up under scrutiny. He recognized that the other imperative need that he felt, a need fully as powerful as his craving for blood but quite impossible to satisfy, was simple lust; but lust for whom, for what? Not any woman that he had ever met; not any man or child or beast. This most urgent drive was toward a female of his own kind. And he had to find her. Life would sooner or later become altogether unbearable otherwise.

This exposition of Clifford M.'s thoughts is not invention; it is taken from his entry in the Burbank journal for June 3, 1972. This was, as it happens, the last entry save one (dated August 7, 1972). At that point he either gave up the journal or began to keep it in a different form. If he did so, the later entries have not been found.

From various sources we can put together a fairly complete picture of the way Clifford M. was living at this time. We must remember, first of all, that he lay in a coma each day from sunrise to sunset, so that his life was lived entirely at night. Remember also that his castlelike house stood in an isolated spot several miles from the dingy small town where Robertson maintained his office. The house was not visible from any road, and the only visitor who ever came there was Robertson, who once a week appeared an hour after sunset to make his report.

Robertson was in his seventies by now, and had spent more than fifty years in the employ of Clifford M. He had been very well paid, but no doubt he sometimes had night thoughts about the value of a lifetime spent gathering pointless data for a rich monomaniac. He had become very skilled in separating the wheat from the chaff of the clippings, so that by this time he seldom had anything to show his master on the occasion of his weekly visits; but when he did bring something, Clifford M. invariably found it to be worthy of further investigation.

If our calculations are correct, Clifford M. was, in the mid-1970s, about a century old. He appeared to be in his middle thirties, a handsome, pale man with jet-black hair and eyes, slim and athletic. He wore conservatively cut, expensive clothing that never fit exactly right, because he bought it by mail. He kept two servants, a couple now elderly, peasant immigrants from some Balkan mountainside. This pair had a very good idea of Clifford M.'s true nature, and they catered to his nocturnal habits and bizarre quotidian diet

without apparent qualms. They were putting by a good deal of money.

He kept a car, a specially built dependable vehicle capable of high speeds, disguised by the nondescript body of an aging car of medium price. Monthly, or perhaps a little oftener, he would drive off after sunset and return shortly before dawn, having obtained the necessary human blood once more. He was prudent and foresighted in these forays, never taking so much blood from one victim as to cause death, or even symptoms serious enough to send the victim to the doctor. His hunting ground was a circle with a radius of about a hundred miles, centered on his house.

During those years he also made sixty or seventy longer journeys, to various parts of the country (and four times to Canada and once to Mexico) to follow up investigations that had uncovered a possibility of the presence of vampires. These trips required a careful preparation, to ensure that there was a secure place for him to sleep each day, both on the road and at his destination. Robertson acted as advance man for these expeditions, arranging for a day's use of a vacant house at each stage of the journey, and renting a house under a regular lease agreement at the destination. The Balkan couple would accompany Clifford M. in the car, sleeping in the back seat as he drove through the night, and during the day standing guard as he slept. On none of these complicated safaris did he find what he was seeking.

Until the last one, of course. And that one, as it happened, was only at a distance of a single night's driving, off in the western part of the state in the pleasant small city of Sturkeyville. An examination of the files of the *Herald* newspaper of that city makes it possible to determine almost precisely the events that alerted first Robertson and then Clifford M.: a rising incidence of an inexplicable malady among the inhabitants of the county, and then, after a time, deaths and disappearances. Robertson went ahead, as usual, and found a derelict house to rent; Clifford M. and the servants followed soon after.

It is necessary now to turn away for a moment from our scrutiny of Clifford M., and to examine the situation in Sturkeyville at the time of his arrival. There is no need for any sort of conjecture here, for we have the direct testimony of the three chief human participants in the events that followed Clifford M.'s success in his long quest. The three are Blanche Tolliver, Edmund Hodge, and Frank Polder, who are, respectively, a physician, an industrialist, and the principal of East High School. Blanche Tolliver took over her father's practice in 1958, and she practices much as he did; that is, she makes house calls at any hour of the day or night, knows all her patients well, and never presses for the payment of bills.

She and Edmund Hodge have been lovers for the past twenty years; they cannot marry because Hodge's wife is still alive in the mental asylum where she has been confined for a quarter of a century. Hodge is one of the heirs to the Hodge Brothers Foundry, the city's chief industry. Frank Polder is his cousin. The three have been friends since childhood.

They became involved in the case of Clifford M. because Blanche, whose practice extends to fairly remote sections of the county, began to believe that a new disease had come to the area, a disease with symptoms identical to those indicating a loss of blood, but which she found in persons without wounds or internal bleeding. It was a little time before she spotted the puncture marks on the throat of one of the sufferers, and a while longer before she found a second set and began to make a connection. After that she looked for, and found, the punctures wherever she found the symptoms, whereupon she canvassed earlier patients, and learned that they, too, had had such marks, which, however, soon healed without a scar.

She and Hodge have for many years had the habit of discussing their work with each other, and Hodge thought her account of the new disease interesting enough to mention it to Polder, who immediately reacted as one would have expected the other two to have done: "Dracula!" he said. They laughed.

But there were more cases, and then a woman died, and shortly thereafter two children; the woman's autopsy showed that she had indeed lost most of her blood. The three of them talked about it over dinner one night, and as they talked Polder's jest began to seem not very funny, after all. Before the evening was over, it was decided that Polder, who had some time to spare just then — it was July, and preparations for the fall term were still moving at a leisurely pace — would spend a week or two interviewing Blanche's patients and seeking unreported incidents.

Two weeks later, they met again. Polder said, "Somebody's doing it, all right, sucking blood. About half of these people have kind of a memory — or a dream — of somebody starting to do it, or approaching to do it. Everything's pretty confused, and they all think it *was* only a dream. But twenty-three people couldn't have such similar dreams, with the same characters in it. We're looking for a man and a woman, or two men and a woman. And get this: they're hillbillies. That's something that turns up in all the stories. Dreamlike and hazy though it is, one memory stayed with them all: a man in dirty bib overalls, a greasy black felt hat, and clodhopper shoes; and with him a partner, either another man dressed the same way, or a woman in a filthy gingham dress wearing sneakers and red ankle socks. The descriptions turned up over and over, and half the people I talked to called them moun-

tain people or hillbillies. I think we ought to call the police now."

"I suppose so," Hodge said, "but it'll be hard to make a case against them, if the victims think they were dreaming, and the wonds have healed up. But they have to be stopped. At least it's kind of a relief to learn that they're just criminal lunatics. It's better than believing in vampires."

"I think I *do* believe in them," Blanche said. "I think these *are* vampires."

"But you heard the descriptions, Blanche."

"And why shouldn't those be descriptions of vampires? Can you tell me what a vampire looks like? Why not like a hillbilly? A vampire's protection is his resemblance to human beings, if the stories have any truth in them. And they live to be extremely old. Imagine a vampire two hundred years ago, living somewhere back up in the mountains. What kind of people would he look like, act like? Mountain people, of course. Does a vampire have to look like Bela Lugosi? Would an Appalachian vampire wear evening clothes?"

The two men thought about that. After a time Polder said, "I think you're right. The way those people talked about their 'dreams' — they had a sense of something extraordinary, something they couldn't describe, something that was even more terrifying than a bloodthirsty madman. All in their dreams, of course."

"That's another thing," Blanche said, "that feeling they all had that it was a dream. They'd remember, all right, if they were attacked by blood-sucking crazies."

"All right, then, say it's true, say they're vampires," Hodge said. "What do we do now?"

"Call the police," Polder said. And almost immediately added, "and they'll lock us up in the booby hatch."

"Yes," Blanche said. "Why don't we see if we can find them ourselves, catch them in the act, or something?"

"Why not?" Hodge said. "It's probably dangerous, and we haven't the least idea how to go about it, and in the end they'll turn out to be plain murderous maniacs, if they exist at all. Sure, let's go."

They began with a map of the county and the dates and locations of Blanche's cases and the cases of other physicians, who cooperated with her in a rather puzzled way. These data were entered on the map, and Polder undertook a fresh round of interrogation, quizzing families living in the vicinity of dots on the map; he uncovered a dozen cases of people who had never taken the problem to a doctor, but who had nonetheless recovered.

They ended with seventy-eight instances of deprivation of blood, spread over a period of thirteen months. They arbitrarily selected calendar months as a data base, and drew lines connecting the dots for all cases that occurred

within a given month. They ended with a picture not unlike a topographer's contour map of a fairly symmetrical mountain peak.

"Circles," Hodge said. "Concentric, damn near. And the smallest one's dated a year ago in May. That's the earliest."

"That probably means they started fairly close to home, and moved out farther as time passed," Blanche said.

"It doesn't make sense," Hodge said. "I thought those things lived practically forever. Why would they start drinking blood just thirteen months ago? What have they been doing all these years?"

"Maybe they just moved here. I suppose they can move from place to place, just like people."

"Maybe so. Where's the center? Where's 'home'?"

"Dobie's Store is a junction of three mountain roads. A general store and blacksmith shop had flourished there in the days when the roads were too primitive to accommodate automobiles, but today it is only an uninhabited collection of tumbledown buildings. Within a mile or so there are three or four abandoned houses, all but one of which have fallen down, and are nothing more than piles of rotting boards. The remaining house, the old Sharpless place, is a roofless set of stone walls in the middle of a dead apple orchard."

"It's appropriate," Blanche said. "What do we do now?"

"Why, we find 'em," Hodge said. "Find 'em and—" He stopped.

"That's it," Polder said. "If we find them, what will we do?"

They stared at each other. Blanche said, "It seems simple enough to me. If they are ... what we think they are, we give them the wooden stake treatment."

"And if they're not?"

"Then we're in trouble. I don't think we're up to handling three homicidal maniacs."

"If we spot them in the daylight, we'll know they're just loonies, and call the sheriff," Hodge said. "Now, how are we going to go about flushing them?"

They discussed it until late at night, without agreeing on a plan; and the next evening Clifford M. called on Blanche, who was fascinated by what he had to say. She called her two partners, and before the night was over they had agreed on what was to be done.

Clifford M. was suave, diplomatic, and persuasive; he contrived to leave with the trio an impression that here was a rich man of laudable character and high intelligence, who happened to have an eccentric conviction that vampires did in fact exist, and who spent his time and money hunting for them. Since that conviction was rapidly becoming their own, they welcomed his advent and offer of cooperation. He described to them, accurately enough, his clipping bureau and the criteria he

had developed for sifting clues out of the raw data, and how this method had led him to Blanche. He hoped that they would permit him to join their search. The discovery and dispatch of these unnatural felons would at last vindicate him and reveal to the whole world that his tenacious belief that these creatures existed was not after all a laughable delusion, but simple truth.

He was pretty much of a night owl, he said, and he had made a lifelong study of vampirism, and he possessed a very fine night telescope. He proposed that he undertake night observation of the area they had so cleverly located, and that the two men, who were avid hunters and represented themselves to be capable outdoorsmen, should arm themselves and make a thorough search of the area during the daylight hours. All agreed that it was a practical scheme.

And now this account must abandon for a space its restriction to matters that are fully documented, and indulge in certain inferences and inventions. All of the undocumented material in what follows is based upon established, verifiable facts, and if what is recounted is not precisely and in every detail an accurate account, it most certainly captures the tenor of these events; they must necessarily have been very close to what is here set down.

For this much, at least, we have sworn testimony: for three days Hodge and Polder, bravely turned out in red caps and jackets, carrying shotguns and wearing sidearms, searched Dobie's Store and the forest round about without success. Each evening after their return to town, they met with Blanche and Clifford M. (no one had yet taken notice that they saw him only after sundown) and reported their failure. Clifford M. would then give an account of his efforts of the previous night — also reporting no luck — and the hunters would retire to a well-earned night's sleep, while Clifford M. was, presumably, back up the mountain, searching with his night glass for vampires.

On the third evening Clifford M. did not appear for the meeting, and the next morning Hodge and Polder went to the house he had rented. Clifford M.'s car was gone, and the house was empty, but taped to the front door was an envelope addressed to "Dr. Tolliver." They immediately took it to Blanche, who read the note to them: "They are under the old Sharpless house, and there are four, not three. Use the stakes."

Another letter to Blanche from Clifford M., delivered to her by Robertson after the whole thing was over, tells what Clifford M. was actually doing on those warm July nights. It gives only a skeleton, however, and this account will somewhat flesh out that skeleton; the reader should, from time to time, supply for himself such formulations as "it may be supposed...." and "it is reasonable

to assume that...."

It is plain that the work done by Tolliver, Hodge, and Polder was a great help to Clifford M., and saved him a good deal of time. They had very competently narrowed the area to be searched, so that he was able to spot his quarry on the first night he went to Dobie's Store. He had parked his car a couple of miles from the road junction and proceeded on foot from that point. He believed that he had the ability to transform himself into a bat, but he did not know how to go about it; he had concluded that the technique of such transformations was something taught to the young by their elders, and he had had no one to teach him. So he walked, padding silently along the dusty road, sniffing as he went. He was not sure that he would recognize fellow vampires when he met them, but he hoped that he had been born with some instinct that would make the identification, and he had an idea that his sense of smell might trigger the operation of the instinct.

That turned out to be correct. When the breeze brought him a whiff of the smell, he knew with perfect certainity that he had found them. What he had not expected was the kind of smell it was: an appalling, monstrous horror of a smell, a stink so abominable that for the first time in his century of life he experienced nausea. It was an odor of rotting flesh and mold and decay, of feces and ancient confined uncleanliness, the authentic odor of evil. He was stricken suddenly with apprehension and fear. Was he one of *these?*

He veered from the road and followed his nose toward the source of the stink. In a little while he saw them, three pale faces floating in the shadow the stone cast in the moonlight. Apparently they recognized him for what he was; they made no move either to flee or attack.

Now it is perhaps succumbing to the pathetic fallacy to ascribe human emotions to a vampire, but it does appear that at this point he felt a certain diffidence and shyness. This changed to fastidious dismay when he approached and saw them clearly. He was quite aware that he was seeing them with eyes conditioned by human ideas and standards, and that he should, in justice, judge them otherwise; but what he saw seemed to fit only too well with their disgusting reek. They were dirty, indescribably dirty, caked with the filth of decades, the ragged rustic clothing stiff with a thousand drooled spillages of blood, the pale skin ingrained with dirt, the hair and clothing spread with crumbs of earth and clots of mud. The thick, horny nails of their hands were long and black.

One of the males spoke. The language was not only incomprehensible to Clifford M., it sounded like no language he had ever heard before. He said, "I don't understand. Do you speak English?"

"Sure. 'Course. Who you? Hah come ya don't talk—?" He used another incomprehensible word.

"I was raised by — with — people," Clifford M. said. "I never heard it before."

"Where the rest o' ya?"

"There aren't any others. I'm alone. That's why I wanted to find you."

There was a silence. The scarecrows looked at each other and then at him again. Dim minds were struggling with something new. Finally, the male said, "No others?"

"No," Clifford M. said.

"We don't know of no others, neither. We been a-huntin' a long time fer some. I guess we uns is all they is."

It was a nasty blow. He realized then how much he had hoped to find a clandestine community of some sort, and ... what? A female, certainly, and perhaps companionship. But with these things—?

The male said, "You et yet?"

"Uh, no. Not tonight."

"Come on, then. Them two'll go north, we uns south."

The other two were suddenly gone in a black sweep of great bat wings. Clifford M. said, "I can't do that. I don't know how. I'll wait for you here. I ate last night."

They came back about an hour before dawn, replete and logy. The male said, "Hole's just big enough fer us. You got a sleep hole?"

"Yes," Clifford M. said. "I suppose I'd better go now."

For the first time the female spoke: "You want a piece 'fore you go?" She had hiked the dress up to her waist.

Her it was, then: the object of his long search. He looked at the filth that covered her, and smelled the smell of her, and the lust of sixty years was suddenly gone, shriveled by a fierce disgust. "No," he said. "No. Not tonight."

She spoke to the others in the strange language. One of them grunted, turned away, and passed through the doorless doorway into the blackness between the walls. The other took her quickly and roughly, a swift animal coupling, without speech or tenderness. They rose and disappeared through the doorway without speaking further to Clifford M. He turned and walked slowly back to his car.

The next night he hunted on his own, and fed before midnight. He went back to the roofless house then, and found them sitting beside the wall, silent and motionless. They would not feed tonight, nor for several nights more. There was time now to talk to them, to learn about them — and about himself. He said, "What are your names?"

There was a silence. After a time the female said, "We got names."

"Yes," he said. "What are they?"

Again silence. Then one of the males: "I don't just remember. No matter." And the other male: "No matter."

Clifford M. tried again: "How old are you?"

Silence. Then: "Old."

"But how old?"

"Don't rightly know."

"What's the first thing you remember?"

A very long silence. At last the female said, "That there baby that the telephone woke up. I had to git out."

"They wake up sometimes," one of the males said.

"Don't you remember anything earlier? Before there were any telephones, maybe? Do you remember any wars, say, or who was president?"

"Guess not. Don't rightly understand what you mean."

He tried another tack: "How long have you been ... sleeping here?"

"Not long."

"Where did you come from? Why did you leave? Why did you pick this place?"

They could scarcely handle one question, let alone three. None of them ventured a reply. He said, "Did you ever live in a real house, instead of a hole?" He could visualize them in their daytime coma, squeezed together in a reeking lump at the end of their wet burrow under the wall.

Surprisingly, the female said, "We had a table with a cloth on it an' shiny dishes an' real wax candles."

"Yes," Clifford M. said. "Go on."

But the flash of memory was only that. When the silence grew long again, he said, "Where else have you lived?"

"There was that there cave," a male said.

"Yuh. The cave," the female said.

"Where was it? Can you remember?"

There was no response. He said, "What was the town? The town closest to the cave?"

"Caseboro," one of the males said, after the usual pause. "Maybe Caseboro."

Clifford M. knew the town, a crossroads settlement in the forest he had ranged as a wild boy. He said, "Have you ever had children?"

"Kilt 'em!" the female cried. "They kilt 'em!"

"Yuh," said a male, "they kilt 'em."

"Who? When?"

"Well, you know. We was asleep. They pounded them young 'uns to death. We found 'em. Maybe one got away. We couldn't stay to see. We had to get us a new hole."

It came to Clifford M. then that not only were these vile creatures his own kind, they were, quite possibly, his parents; and with the realization came a conviction that he himself must become like them, as the slow centuries came and went, and his almost-immortal body at last outlived his mind. It was his fate to become just such an unclean being, diurnally lying comatose in a muddy burrow, awakening only to prey disgustingly upon human beings, and, once fed, to spend the remaining hours of the night in mindless stolid waiting for the rising sun to drive hime back to his hole. He said, "I must go now. I will be back to-

morrow night." The others did not reply.

At about ten in the morning, Blanche, Hodge, and Polder arrived at the ruined house, prepared for the destruction of vampires. They had shovels and picks, poweful flashlights, eight sharp hickory stakes, hammers of various sizes, Bibles, crosses, garlic, pistols, and shotguns. This gear had been loaded into Hodge's van, which he had driven up to the very wall of the ruin. He said, "Well, where do we begin?"

"Inside first," Blanche said.

"Watch where you're going," Polder said. "There may be a cellar we could fall into."

They went to the gap in the wall. Inside was a pit that had once been the basement of the house. Now it was almost filled with a confusion of rotting timbers from the fallen roof and floor. Through and over the timbers, brambles and great fibrous weeds grew in an insoluble tangle. The sun beat down with a white glare, and through chance interstices in the tangle of decay it was reflected by a green-scummed surface of water. Flies buzzed.

"Good God," Polder said, "where do we begin with *that?*"

"The side walls, I should think," Blanche said. "They'd have to be where there's no chance of the sun striking them. Let's see if we can find enough solid footing in this mess to hunt for openings in the walls."

Five minutes later, Hodge and found it: a two-foot hole hidden by carefully placed timbers and a bush. "Here it is," he called. "What now?"

"Now we clear away enough of this stuff to give us a place to stand down there," Blanche said. They fell to work.

After a time Hodge said, "That ought to do it. Hand me a flashlight. Let's have a look."

He shone the light into the tunnel, and almost instantly leaped back. "There's one just inside," he said. "Only about a yard back."

"Well, pull it out."

"I'd just as soon not reach in there," Hodge said. "Give me the pick. I'll hook it out. The head's at this end. I can hook it under the arm. Blanche, hold the light."

The body slipped out of the tunnel quite easily, and tumbled to the floor of the pit. "Clifford M.!" Blanche said. "It's Clifford M.!"

"Didn't you expect it, after his note?" Hodge said. " 'Four, not three' he wrote. I—"

It was then that the smell from the unplugged tunnel reached them, and Hodge said no more, because he was vomiting. So was Polder. Blanche had been inured to foul odors by years of medical school and practice, but even so, she turned pale. "My *God!*" Hodge said, "I never smelled anything like that!"

"Vampires," Blanche said. "Let's

have them out of there and finish the job. The sooner we — my God, look at him!"

Clifford M.'s face and hands were blistering under the sun's hot glare; blistering with extraordinary speed, almost bubbling, in fact. "Cover him up," Blanche said. "There's no need for that. We'll be, uh, killing him in a little while. No need for that."

Polder fetched a tarpaulin from the van and covered Clifford M. "Now," he said, "how do you suggest we get the others?"

"We'll have to dig," Hodge said, "unless somebody wants to crawl in after them."

"Let's dig," Polder said.

It was four in the afternoon when they finally uncovered the three, and all the diggers had badly blistered hands. The heat was stifling, and the stench almost insupportable; the tempers of all the diggers were badly frayed. It was Polder's shovel that first broke through into the enlarged space at the end of the tunnel where the vampires lay tangled together in a muddy ball. At the bottom of the hole they were out of the sun's direct rays, but the instant they were hauled into the sunlight their skin began to bubble. Hodge said, "Frank, bring the stakes. I'll get the hammers."

Without discussion each took a stake and a hammer. They laid the creatures on their backs, side by side, about a yard apart; Blanche went to the female, and the men to the males, and they positioned the points of the stakes. They struck in unison, as if they had rehearsed.

The creatures squalled when the first blows were struck, and the sound was sufficiently nasty and inhuman to wipe away any misgivings or remorse the executioners might have had; they pounded fiercely and eagerly until the stakes had pierced the bodies through. Then they rose to their feet, backed off a couple of yards, and stared at what they had wrought.

It was a marvel of swift decay, following precisely the classical progression set out in the relevant literature: the almost instantaneous bloom of the flesh into wet rottenness, followed in the space of a breath by its drying, withering, and falling off the bones in sere crumbs; and then the bones themselves disintegrating and crumbling and settling into lines of gray dust. In a very few minutes there remained only three sets of noisome rags stretched out on the weeds.

Polder and Hodge scraped the clothing into the hole with the shovels and threw in enough dirt to cover them. Blanche returned to the pit where Clifford M. lay, and stood looking down at the tarpaulin. When Hodge and Polder joined her, she said, "Are we sure about this?"

Hodge pulled off the tarpaulin. The sunlight, masked though it had been by the heavy canvas, had worked great harm to the face: the blistered flesh had dried and hardened, with strips of it

being loosened and forced upward by fresh blistering, so that what they were looking at resembled a segment of the trunk of a shag-barked tree. Hodge said, "What do *you* think?"

"I think we're sure," she said.

When the stake entered his heart, Clifford M. emitted a screech much like the others, but the swift metamorphosis to dust did not take place. Except to the ruined face and hands, it might have been an ordinary corpse. Polder said, "Did we make a mistake? Is he — was he—?"

"A man?" Blanche said. "No. Look what the sun did to him. The others went to dust because they were very old. But this one must have been younger. Maybe even as young as he looked. But he was one of them, all right. What puzzles me is why he put himself in this position — why he committed suicide, so to speak. And why he dressed up that way. Well, I suppose we can bury him now."

Two days later, the man Robertson brought her the letter. It remains in her possession, and has been examined by the present writer. She has given her permission to quote from it. It is the only piece of confessional writing by a vampire that we know of, and is thus an extraordinarily valuable document. Clifford M. was, of course, far from typical, and one regrets that there is not an equivalent missive from the hand of an ordinary vampire. It would be invaluable.

Blanche Tolliver read the letter to the two men that same evening. It is not, unfortunately, very enlightening about Clifford M.'s day-to-day (perhaps one should say "night-to-night") life, nor does it give much new information about his history — which, as I hope I have by now made clear, we have had to piece together from other sources, and which still contains a regrettable number of gaps. The value of the letter lies in its revelation of the reasoning that led Clifford M., in all probability the last vampire in the continental United States, to arrange his own death.

"The encounter for which I had searched for so many years," he wrote, "the encounter that would, I believed, give me at last both a certain knowledge of my own nature and the companship of others of my own kind, has turned out to be final and conclusive proof that I am quite alone, that I am *sui generis*, that — in my mind, at least — I am neither vampire nor man, and thus have no hope of finding, ever, peace or contentment. I was born a creature not human, and inhuman I am; but I was reared as a human, and human I am in my thoughts and attitudes. I exist neither as fish nor fowl, to use a cliché metaphor that has considerable irony in this context, and that might make me either laugh or weep, were I human enough to do either.

"That, you see, (I am going to sound pretentious) is the tragedy of my life. I would like to be human. The picture I had of my own kind, I now per-

ceive, was, until I actually met some of them, a picture of cultivated humans who possessed — as it happened — certain nocturnal proclivities, and who required a somewhat specialized diet. But I met monsters. And the fact that I found them to be monsters brought home very forcibly my utter isolation. It would be quite impossible for me to live among such creatures; I would rather live with hyenas. Yet they are my own kind, and they are what I am certain I would have become if my life were to continue for as long as theirs have.

"So I have decided that I shall end it here and now. If you are reading this, then the deed has been done, and you have rid the world of some dangerous and disgusting vermin. I refer to my three ... colleagues. I myself am not at this time dangerous, or, I trust, disgusting, but it would have come, it would have come. Some time in the future my mind would have failed, as theirs have, and my body would have gone on and on, year by year becoming more bestial and loathesome.

"I much prefer for myself the ending I have arranged. I will put on evening clothes (a relic of my college days, when I was still able to visit the tailor for proper fitting) and go out to Dobie's Store, and — looking every inch the fine gentleman — advise those foul predators, my kinsmen, that I am throwing my lot in with theirs. They will tell me, I imagine, that there is no room for me in their hole, and I shall reply that I shall sleep in the entry tunnel for the nonce. If I have judged you and your associates correctly, Dr. Tolliver, before sunset you will have taken care of my lodging problem for all time to come.

"The evening clothes will perhaps puzzle you. They also puzzle me, rather. I suppose it is a final effort to show that although I am indubitably one of these creatures, yet still I am different — and better. And there is no doubt some sort of wry satisfaction, or even amusement, in knowing that I will be dressed like Count Dracula when I receive the stake. But that analysis is doubtless mistaken. I have never heard of a vampire finding amusement in anything, and a likelier explanation is that my mind is already beginning to fail.

"I cannot be a human being. I will not live as what I am.

"Yours, etc.
"Clifford M."

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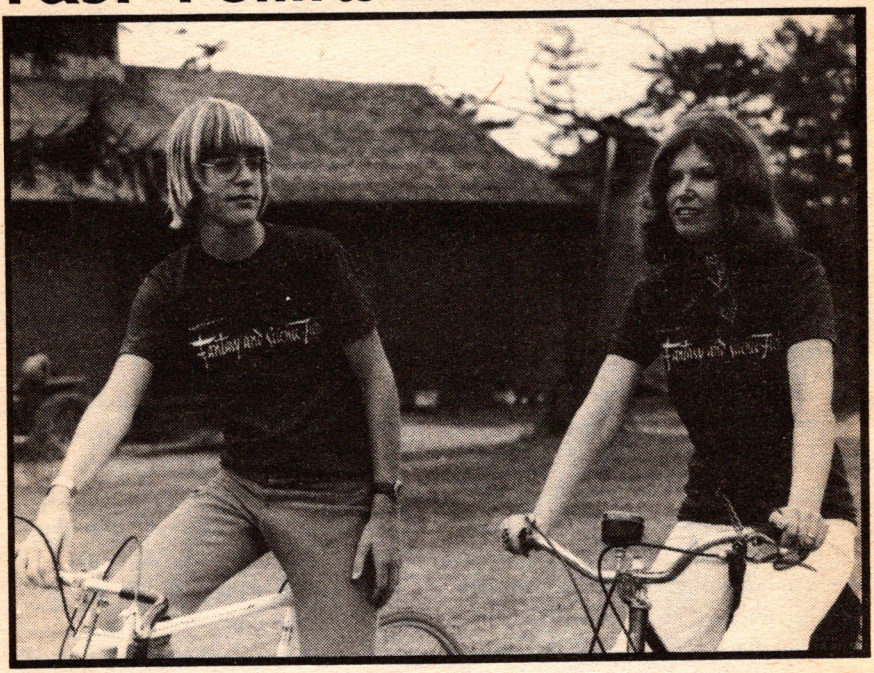

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Whatever the latest fad is, you should perhaps show some caution about becoming involved...

Cube Root

BY

JACK C. HALDEMAN II

Little David Emerson started it all by disappearing on television. He was only eleven years old and cute as a bug's ear. I hated to see him go like that. He had the fastest fingers I'd ever seen. I was really rooting for him. So were millions of other people. We were disappointed when he vanished. I lost a five-dollar bet with my wife. She'd been pulling for the kid on the left.

Bill Barker, the announcer, was probably more upset than any of us, although he didn't lose five dollars. What he lost was a contestant. One minute he had six kids onstage and all of a sudden there were only five. It was quite a shock and he was not prepared for this to happen. He just stared at the place where the boy had been standing. He stared for a long time and things did not change. Where there had once been a kid there was nothing but thin air. Too bad. The kid had a nice set of freckles. I like freckles. Cute. All that was left of him was his Rubik's cube. Not a freckle in sight.

I guess that started it all, but at the time all I felt was disappointment. I'd settled down in front of the tube with a cold beer and was expecting to see the fastest kids in the world whip their Rubik's cubes into shape. All I saw was a kid disappear. Big deal. They didn't even finish the contest.

Bill Barker walked over and picked up the kid's discarded cube. He gave it a couple of twists and then he disappeared, too. All these disappearing people were starting to bore me, so I opened another beer and switched over to the sports network for a replay of last week's game of the century.

It made the papers the next morning. "KID VANISHES." ... "TV HOST ALSO MISSING." *Big deal,* I thought, flipping to the sports section. I was still grumped over losing five dollars.

Who'd miss a couple of TV people, anyway; even if one was a kid with freckles? They were only TV people, not your normal real people like the rest of us. Finding out if the Lakers

beat the spread in last night's game seemed a lot more important to me at the time. I was wrong.

The Lakers hadn't beat the spread, and the kid turned out to be a big deal, after all. I lost ten dollars on the Lakers, and the kid became a scientific marvel. You just can't tell what's going to turn out to be important anymore.

Like those cubes, for example. I understand they were invented by a mathematician, and that's easy to believe. There are millions and billions of ways to put the cube together. I never did like big numbers. They confuse me. Figuring the odds on the daily double at Belmont is about as far as I go with math. Of course, of all those millions and billions of ways, only one turned out to be important.

I guess it was only a matter of time before someone hit the right combination. It's like all those monkeys typing that Shakespeare fellow. Sooner or later someone was going to come across it. There were a lot of cubes out there. Maybe it even happened before and nobody was around to notice. Just luck the kid was on TV, that's all.

I don't understand it real well, but the same math-type people who invented the cube claim that in that one position it taps into some hidden power source that runs through the universe. They call it resonance. Something like that. It takes the person holding the cube and zaps him someplace else. Of course, they haven't figured out exactly *where* yet, but that doesn't stop people from giving it a

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shot.

The world's gone crazy. People disappearing all over the place. Last week the Nelson family next door went down the cube tube. All of them. Zap. I wonder who's going to feed the cat? Not my wife, that's for sure, even though she used to have a soft spot for abandoned animals.

She doesn't do much anymore. Doesn't do anything, as a matter of fact, not since they discovered the Hula-Hoop factor. I keep her propped up by the fireplace for old time's sake. She's got a real dopey smile on her face, and I guess she's happy. Stiff as a board, that lady is — hasn't moved a muscle in almost two months. Turns out Hula-Hoops revolving at a certain speed will produce unbelievable happiness. They also make you stiff as a board. She was always great with a Hula-Hoop.

All kinds of things turned out to have hidden qualities. You should see what Frisbees do with just the right degree of backhand. Pac-Man has unprobed depths. Fads of all sorts are being examined by experts and amateurs all over the world. No one knows what they'll find next.

There's a group out in California trying to find a new use for dead cats. They think it might give them a new religious experience or something. Me, I don't put much stock in that.

But if I ever find me a dead preppie, I've got an idea or two I'd like to try.

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Books

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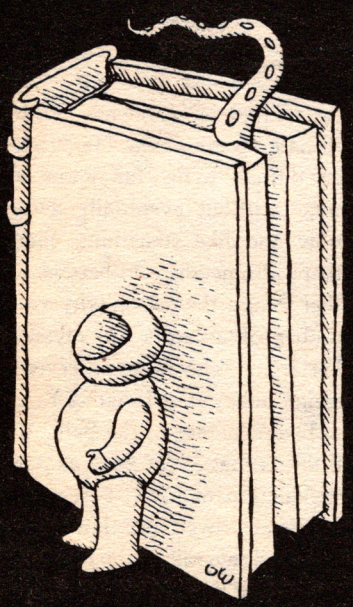


Drawing by Gahan Wilson

The High Kings, Joy Chant, Bantam trade edition, $24.95

The Wild Shore, Kim Stanley Robinson, New Ace Science Fiction Specials, $2.95

The Man in The Tree, Damon Knight, Berkley Books, $2.75

Signal events appear to be occurring. I look forward to the day we can look back on them and be sure what they meant. Meanwhile, they're often sufficiently tantalizing in their own right.

For instance, there is the occurrence of *The High Kings*, a Bantam hardcover trade book, 7½" x 10", bound in something closely approximating cloth and gold stamping, with a very striking dust wrapper designed, one presumes in the absence of a separate credit, either by George Sharp, the illustrator, or by David Larkin, who designed the book. (The text is by Joy Chant.)

My vocabulary does not suffice to accurately praise the illustrations or the book design. I can't imagine it done better. Subtitled "Arthur's Celtic Ancestors," the book, in Sharp's color plates and color drawings embodied in Larkin's felicitous design, decoration and typography, is as if one had superbly deployed a camera on rude but stately Britain.

I think anyone contemplating a novel set anywhere near that time and place, or any novel of swords and sorcery, would improve greatly simply by paging through this piece of creativity.

The fact is, if you are moved at all by the stuff that induces wonder into genuine historical novels (as distinguished from bodice-rippers) and/or heroic fantasy, here is that essence, made available to the heart and mind.

Nor is the text all that pale, although by comparison it is stiffly rendered, and furthermore is an "interpretation" of history. Under the circumstance of lapsed time, and the fact that the history of the Celts was never written down by anyone except at a distance, what Chant has done is what Chant had to do; delve among ravellings of half-lost legend and weave them into tapestries.

What words she gives us are fully freighted with a flavor of a time and culture certainly not ours, yet detectably — the better word would be arguably — ancestral to and understandable to ours. The problem with reconstructions is that you can say that about all of them; they are all informed by what we already know, and unlike real things, have no thrill of discovery in them.

The book thus outruns its text. But considered as a book, it is an uncommon expression of what I called it: creation. And what it signals to us is the full arrival on the scene of a phenomenon that may, once again, have profound effects on SF; namely, the latest incarnation of Ian and Betty Ballantine.

These two extraordinary people left Ballantine Books behind a number of years ago. Even then, although it was always Ballantine Books, there were actually several avatars. Before that, there was Ian's founding of Bantam Books, and before that there was Penguin, and before that, I guess, the flood. Since Ballantine, the two of them have been in business as publishing consultants, promulgating such diverse things as the knockout coffee-table bestsellers on gnomes and fairies, and Bantam's uniformly-packaged rack-sized nonfiction Aviator's Bookshelf series.

Here's an intellectual construct: If there is a core phenomenon called speculative fiction, there are also closely related ones, such as traditional folklore on one side, and on another side the saga of transcendant technologies such as aviation. A third is war treated as a science, with subordinate technologies featured. It's very difficult to be a fan of one of these things without eventually getting to know and like something about the others. (Somewhere in here is, among other things, the reason why a striking number of aviators are mystics and libertarians who favor interventionist foreign policy, but I digress.)

The relevance of the Ballantines to all this is that as far back as Bantam's introduction of C. S. Forester to the American newsstand, Ian and Betty alone and severally have been working this neck of the literate universe. Their contribution to its present estate has been enormous and pervasive, and

clearly it's not done yet. What Ian is carrying around under his arm these days is a portfolio full of watercolors for his next big project, a comprehensive picture book that will fit right on the same shelf as *The High Kings* and will serve to further extend our education in matters kingly. I suppose Betty's up to something, too.

Mind you, over the years I've registered some contrary opinions on Ballantine projects. The closer they get to the core of SF, the less sure of their footing they are. That's O.K.; we have other people taking care of that. What the Ballantines are doing now is what they do best, and they seem to be gathering momentum.

Kim Stanley Robinson, as F&SF readers have come to know, is an uncommonly gifted writer. But he is also an uncommon sort of writer for our whereabouts, and therefore it's notable to me that Terry Carr and Ace, in reinstituting the Ace Special series, waited until they had his novel to begin the series with. They literally did that — there are other books in the Specials inventory, from other new and promising writers, that waited for Robinson to deliver *The Wild Shore.*

Ace Specials, in their earliest existence long ago when Terry Carr was Donald A. Wollheim's increasingly autonomous assistant at Ace, were books by people little heard-of as novelists at the time. These books that had apparently gone begging on the market until they fell through into Ace's munificent meshes included such titles as R. A. Lafferty's *Past Master,* D.G. Compton's *Synthajoy,* Alexei Panshin's *Rite of Passage,* and Ursula K. LeGuin's *The Left Hand of Darkness.* Suffice it to say that if you feel you need an ingenious, perceptive editor with a nose for future immortals, you get Terry Carr, Don Wollheim having opened his own store.

Carr is turning the trick again, under — or, this time, beside — new management. Stacked up behind the Robinson he has, for example, Lucius Shepard's first novel, which is based on the damnedest SF premise you've heard of in quite a while, and set in a situation that's wild even for Shepard. That ought to make a pretty interesting follow-up. Furthermore, there's no reason to believe Carr only has those two punches in the combination.

And this speaks well of Ace in general, the Specials starting on the heels of such striking main-line titles as Tim Powers's *The Anubis Gates.* Ace in turn then can be regarded as a vigorous and innovative part of the total Berkley in-house conglomerate. What does all this promise? Does it perhaps controvert the prophecies of gloom and destruction that descended upon us when the Timescape program was ripped up by Pocket? Look where we might be, with ex-Timescaper David Hartwell advising Waldenbooks in their innovative SF merchandising pro-

gram and also joining the circle of those finding new titles for Tor, while Jim Baen exercises his notable acumen on behalf of the new Pocket program, and the Berkley imprints burgeon.

That's not the same shape the field was in a year ago, but is it a worse shape? I don't think so: I think DAW and Del Rey will continue their outstanding programs, ably filling the niches they've carved out; I think Bantam's SF line, under Lew Aronica, has the most drive and coherence of any Bantam SF program before or since Frederik Pohl's truncated tenure of nine years ago; I think interesting things are stirring at Signet, which was essentially moribund in this field until the Mike Resnick books began selling, and there are fresh breezes from Avon, at last. And if you want to know why I'm not talking about hardcover and trade paperbacks, the answer is that I am. To all intents and purposes, the editors of the imprints once confined to the rack-size racks are now the editors who condition all other editorial decisions in the field; the signal there came with the creation of hardcover editions and trade paperback runs by Del Rey, several years ago.

But we were talking about Kim Stanley Robinson's novel.

As readers of such short stories as "Ridge Running" have noted, Robinson's approach to storytelling is the traditional literary one, in its best sense, rather than the unique tone SF has developed in years of trying to translate commercial values into literature.

It's possible to have an extended misunderstanding here. Let's not. For present purposes, let it suffice that there's an intelligent, perceptive way of doing SF that results from being aware of Lovecraft, Sturgeon, C. L. Moore, Zelazny, LeGuin, Russ and Wolfe all at the same time, seeing them in the context of all newsstand-borne writing, and seeing that context against the background of world literature in general. And then there's another way in which conventional literature is put first among the awareness, although the writer is fully familiar with SF as it has evolved. The thing is that up to now we have not seen such a writer evolve from our own midst, but Robinson's community credentials are impeccable. He has known other SF writers for years, he has read a great deal in the field, and, as a Clarion graduate, he's fully aware of what his contemporaries are doing.* Neverthe-

**For more information about the Clarion SF-Writing Workshop, held for six weeks each year, write to Clarion Workshop, Attn. Mary Sheridan, Lyman Briggs School, Michigan State University, East Lansing, MI 48824. This summer's instructors are Robin Scott Wilson, Harlan Ellison, Algis Budrys, Elizabeth A. Lynn, Kate Wilhelm and Damon Knight. It runs from the end of June into the beginning of August. It's a residence seminar at MSU, good for college credit, and it's total immersion in the nuts, bolts, and gossamer wings of writing. It's also about $1500 when you add up the tuition, fees, room and board. It's serious medicine.*

less, it's clear he's able to sustain a personal manner that owes at least as much to the tradition of "American Celebratory" writers — people who start out with Washington Irving and arrive at Steinbeck, or perhaps A. B. Guthrie and Frederick B. Manfred, via Mark Twain.

The Wild Shore has a lot of that substance in it; its strong regional flavor, for one thing. Set geographically in coastal Southern California just north of San Diego, and set in time after the destruction and decay of American technology, it's easily read as a frontier novel, with rich threads of Steinbeckian populism woven into its cast of characters.

The situation is that the U.S. was struck by nuclear car-bombs sixty years earlier. To this day, no one in this book knows what the attacking organization was — though the scale of the deployment argues for its having been some major nation — and no retaliation has been made. What has happened instead is that the U.S. has been quarantined, presumably by something much like the United Nations, and turned into a suppressed, backward enclave with entry and exit forbidden. Orbital laser cannon destroy all attempts to rebuild civilized technology, without warning, and unstoppably.

The people of San Onofre are marginal farmers and marginal fishermen, not stupid but uninformed on the processes of the larger world, far from uneducated — thanks in part to a teacher, very old, with books and anecdotes from the glory days when William Shakespeare was the greatest American writer — but with certain lacunae in their sophistication.

None of the others have any memory of the legendary America that put heroes standing in a photograph of what the old man says is the Moon. Some, intent on getting through the day and then perhaps making a new future based on what is, don't want to hear about the Moon. Some don't want to hear about America, and some don't want any part of the agents of the so-called American Underground, with their cosmopolitan outlook and their teasing promises.

But Henry does. At nineteen, he's the star pupil of reading and of the American dream, and best friend of Steve Nicolin, rebellious son of San Onofre's most dynamic and conservative male. The opening chapters of the book, in which we get to know these characters and the full flavor of their daily life, and their frustrated responses to their awareness of the technological world that lies out there beyond the patrolled coastal waters, represent as good a piece of frontier writing as anyone needs to do. Robinson has brought an American culture to life as surely as was ever done by anyone who had a real American culture to research.

You will notice also that what he has here is a Class A science fiction

idea, in that he has proposed a future which is both clearly possible and yet has not hitherto been notably proposed. Taken purely as a proposition in the futurology of political science, this milieu demands serious attention.

The book ultimately collapses under the pressure of time or some other failure to sustain the weight of its undertakings. While some of the subplots are worked out well all the way to the end, others trail off or tangle up without effect. Never mind; it's still a remarkably powerful piece of work, still a good book, almost without doubt a harbinger of great books to come from Robinson. Furthermore, when you consider the expansive context in which it appears, perhaps it's even a precursor of another one of those generations of talent that will find a dozen or half-dozen new names appearing "overnight" to take permanent places in the evolutionary history of this metier.

What's further interesting about all this is that it's apparently something in the air, if you look at it right. George R. R. Martin's recent *The Armageddon Rag*, aside from being a novel with more or less conventional horror appurtenances, is also far more successfully a disquieting piece of sociological nostalgia. Similarly, the best parts of Damon Knight's even more recent *The Man in The Tree* have the least to do with its SF idea.

Again, this is not a good novel *qua* novel; the back half of it reads almost as if a different hand had worked on it ... a characteristic that intriguingly echoes a similar defect in Heinlein's *Stranger In a Strange Land*, which *The Man in The Tree* is inevitably comparable to. In Knight's case, we want to remember that at least as recently as his appearance in *Dangerous Visions* — with a story about the biblical God — he was adamantly declaring his lack of belief in any such thing.

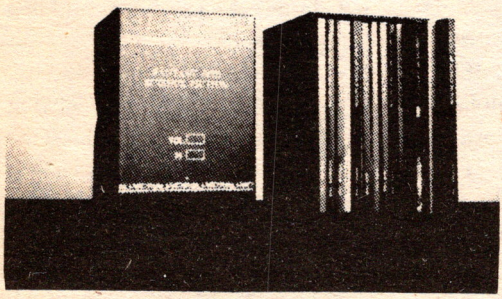
So the main thrust of Knight's book is, apparently, an intellectual exercise in working out how, in a real universe with inflexible physical laws, the right kind of mutant human could rationally duplicate Christ's miracles and charisma, only then to fall through a sort of dimensional manifold and become in fact the Second Coming. Toward the end, having worked it all out in his mind, Knight seems to have neglected writing it all down for us in anything like the richness of texture with which he began.

The interesting — nay, the fascinating, the stunning — part of the book is a novel about growing up in the Northwest if you're more talented than the world will allow. Taken from his first moments of self-awareness, in his mother's womb, Gene Anderson's childhood and adolescence are among the most masterfully realized creations of late twentieth-century American literature, and I kid you not. Right up to the point where he turns into Michael Valentine Smith, attended by the same

awestruck stooges — Oh, hell, to find all that done right, see A. J. Langguth's *Jesus Christs* — Gene Anderson is a poignantly real, unforgettable figure moving as only he could have moved through a world observed by the flawless insights of his author. It's written so well, by any literary standard, that it might well make some people decry Knight's ever having "wasted his talents" on "that science fiction stuff."

And that, of course, is the next danger we face; that, having melded this sort of writing into "our sort" of writing, we will not deal properly with the inevitable pressures to concentrate on what there's precedent and approval for, instead of incorporating what's good in the mundane armamentarium but continuing to evolve what is uniquely ours.

Tell you something, though. I rather expect it will all work out; it always has. If Knight is not sufficiently Technocrat to be a mystic, neither is *The Wild Shore* all of a piece with *The American Shore*. Tell you something else: despite my cavils, I like what's happening, whatever it is.



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Technology today provides us with devices to cook our dinner in seconds, detect smoke, answer the telephone, alert us to burglars. With "Barking Dogs" Terence M. Green introduces us to yet another handy gadget, to detect lying; useful for buying a used car — or finding the truth in one's own heart. Terence M. Green lives in Toronto, Ontario. Although it has been awhile since his last story appeared in F & SF (December 1981), it has been well worth the wait.

Barking Dogs

BY

TERENCE M. GREEN

The black woman in the dark blue dress raised her hand, and Donahue acknowledged her.

"Ma'am?"

She rose as he headed up the stairs and held the microphone in position.

"I wanted to ask Pope Martin why the church is so gol-darned worried about people's sexual behavior." She nodded sharply and glanced about her. There was a smattering of supportive applause from the audience. The camera cut to Donahue's weathered, friendly face, highlighted by the perfectly coiffed silver hair — hair that a group of the world's most notable stylists had proclaimed ranked in the World's Top Ten. His lips pursed impishly, his blue eyes sparkled. Then Pope Martin was centered in frame, the first American pope, suntanned from his recent visit to poverty-wracked Mexico. He leaned forward, elbows on knees, to catch every word.

"I mean," she continued, "if it's only between two consenting adults, who cares? I mean, who *really* cares?" And pleased at having cut so incisively through all the theological and intellectual clutter, she sat down, nodding again determinedly.

"I care," the pope replied, simply.

In his modular Scandinavian living room, viewing with modest interest the encounter on the tube, Mitch Helwig waited for the sensation of cold, piercing steel in his left side, below his rib cage. To his surprise, it did not appear.

The pope, transfixed, transported, and transubstantiated into the electron particles on his TV screen, seemed to realize that this was not enough. They want, he realized, *more*.

"God cares," he added, applying invisible adhesive to his comment.

This time, Mitch did feel the tingling

in his side. Not the icy shaft of pure fabrication — but merely the tingling that indicated that the words uttered were suspect. Just a tickle, a tremor from his Barking Dog.

He's not sure, Mitch realized. The pope ... the goddamned pope himself, deep down, *isn't sure....* The hairs on the back of his head prickled, and a flush of goose bumps shivered into prominence.

The goddamned pope himself, thought Mitch, leaning back, the tingling in his side receding. It was quite a revelation, you had to admit. I realize, he reflected, that he can't really *know* if God cares or not — not "know" in the scientific sense of experiment, observation, and conclusion. But he has to *believe* it. He has to "know" it *intuitively.* How the hell else can he function as pope?

Mitch Helwig, who was not a Catholic, suddenly felt compassion for Pope Martin. The man, he thought, somehow just got in over his head.

Like we all do.

"God knows," continued the pope, "and he wants us to understand, that the very essence of our humanity is inherent in our appreciation of the sanctity of each and every human life. Our sexuality is both a representation of and a reaction to that sanctity, and certainly our most intimate form of appreciation and communication."

Smooth, thought Mitch. He certainly is smooth.

"And," he went on, "it is not accidental that the procreation of human life is so integral a part of such a profound representation of our identities. For, in essence, our sexuality is ineluctably entwined with our Total Being. Thus, the church is not off course at all in focusing on sexuality as a potential key to Christian behavior and attitude. On the contrary, it is central to the church's theology, and central to the concept of *caritas.*"

The camera switched to the befuddled woman who had asked the question, catching her alternately rolling her eyes and glaring at the pope.

Why can't he talk to her level? thought Mitch. Who the hell can follow that? It might be all bullshit — who can know? Unless they've got a Barking Dog....

The tingling in Mitch's side had once again been stimulated: a rustle, like a leaf stirred by a breeze, then nothing.

Donahue himself decided to leap into the fray. He hadn't hosted this show for over twenty-five years for nothing. Timing, he had.

"What this lady probably wants to know," he proffered, extending a hand in her direction, "is whether what is morally right or wrong shouldn't be determined by what *people* feel is right or wrong — not by what someone thinks *God* feels is right or wrong." He glanced skyward and held a hand out as if expecting rain, eliciting a chuckle from the audience via his stance and expression, adding the needed comic

relief to the potentially tragic morality drama he was hosting. "I mean, how can anyone be *sure* what God thinks?" he asked pointedly.

The black lady nodded appreciatively at his comprehension and good sense.

Pope Martin, the priest from Detroit who had become, mysteriously, the Prince of the Church, remained staunch. His was the first papal visage in history, this banker's son, that had not resembled that of a Balkan peasant who had suffered life's ghastliness in silence. He radiated American health, vigor, and progress. In a gray business suit instead of his ceremonial vestments, he might have sat at the head of a shareholders' meeting for IBM.

"Then," replied Martin, "one would have Situation Ethics. There would no Absolutes. What would be morally right for one person in one place and time would not necessarily apply to another person, in another place or time. The church maintains that there *are* Absolutes: that some things are Right or Wrong. In any place. At any time."

"But how can we know what these Absolutes are?" added Donahue.

"We have the best theological minds in the world constantly poring over these very issues. They weigh and consider, then they advise me. I, then, seek God's counsel and guidance, through prayer. God," he affirmed, pausing, "would not let me down."

His smile held tremendous confidence, the certainty of blind faith. Mitch Helwig, his feet propped on his teak coffee table, felt a piercing cold stab through his vitals, where before there had been merely tingles.

"There's only one way you can beat a Barking Dog," the lanky salesman had said. "That's if you're schizoid or mentally ill, and really believe what you're saying. It's the *belief* in what you're saying that's measured. Crazies," he gestured helplessly with his large hands, "believe in all kinds of delusionary nonsense."

"And a con artist can't beat it?"

"No way."

The salesman confronted the customer in the appliance section of Woolco in Thorncliffe Plaza. The customer, he noticed, was wavering, frowning. The customer was Mitch Helwig.

"Check *Consumer's Report*, August 1996 issue." Lovely, venerable old *Consumer's*, the salesman mused. The neutral arbiter. Just mention its name and customers relaxed visibly. It sold more units of just about everything than any other dozen testimonials. "They evaluated the top five Barking Dogs: Sony, RCA, Quasar, Panasonic, and Hitachi. Every one of them checked out perfectly in the "Judgment Reliability" category. It just *can't* be beaten. A con man might be a good actor; but even he can't control his heart rate and the subsequent effect on his larynx."

Comforted, Mitch asked, "Ever have a dissatisfied customer?"

The salesman chuckled. "Well," he paused, peering through twinkling, watery eyes, "there was one fellow. He *told* people he was using it." He rolled his swampy orbs upward in a silent plea for basic common sense. "Everybody stopped talking to him until he got rid of it. But he found out one useful thing: his bookie was cheating him. Knew the guy for fifteen years. Shows you that you never know. He started betting the opposite of whatever his bookie told him. So, before he stopped using it, he *made* money. Made enough to pay for the machine!"

The customer, he noticed, was nodding. They always appreciated this story. The possibility of financial insights. It hooked them every time.

"How much again?" Mitch knew, but figured asking it out loud might reduce the answer.

It did. The salesman also knew the game.

"I can let it go for seventy-nine hundred. Cash." He let his new price sink in.

Mitch was sure now. Best price in town — no doubt. "Hmm ... pretty expensive for a luxury item...."

"Luxury item?" The salesman feigned astonishment. "Sir. Knowing the truth is not a luxury in this day and age. It's a survival tool worth whatever we have to pay for it. Like a sextant to a sailor in ancient times!" His enthusiasm was expansive.

"These things didn't used to be all that reliable. How'd they improve 'em?"

"Science," replied the salesman enigmatically. "Microchips. Amazing, isn't it?" He shook his head at the technological wonder that eluded his ability to either comprehend or explain. The two men stood, gazing at the tiny silver trinket the way they would gaze at a refrigerator capable of producing crushed ice. "Read *Consumer's.*"

"Once more," Mitch said. "Give it to me once more, what you do."

"You keep it in your pocket. Smaller than a pocket calculator, right? And you run the wire up under your shirt and attach the sticky electrode to your side. No one knows you've got it. When someone lies to you, you feel the momentary, telltale cold in your side, and you can react accordingly. In effect, sir, it frees you. Think of it. *Free.*"

Mitch did think of it. A lot. He liked thinking how he might use it to set things straight for Mario. What else was a partner for? Mario, he knew, would do the same thing for him. Price was not an issue. Not when it came to your partner.

He tried to get Mario out of his mind. He missed him.

"It'll work even on the phone," the salesman said. "Just direct the receiver at it."

"Have you got one?" Mitch asked.

"Me? You bet I do. I saved money buying a used car from a guy when he knocked two hundred bucks off *after* he'd already sworn black and blue that

he couldn't go any lower." He chuckled.

"Sounds sneaky."

"Mister, when I first got into business, I thought people were basically honest. But, I'm sorry to say, there are very few people whom I trust now. You wouldn't believe the dirty games people play." He put his big hands in his trouser pockets and shrugged. "Yeah, yeah, I know.... People ask if it's really moral to use a Barking Dog. Well, the only answer I give 'em is, do you think it's moral to lie?" He shrugged again, absolving himself of culpability: a rational man who knows and accepts sharks, bacteria, government, child molesters, and earthquakes, all as part of life's sludge — part he has no control over. "You want to lie, I tell 'em, then write a letter."

He had finished his pitch. It had been, he thought, a good one.

"O.K.," Mitch sighed with the relief of decision. "Deal."

He could have had it, the salesman knew, for seventy-two hundred, if he'd had a Barking Dog to use. Such were life's ironies, he reflected, as they filled out the forms completing the transaction.

Saddled into his skimmer on his way to the station, Mitch mulled over the *Donahue* show he'd watched. Working the afternoon shift left him at bizarre odds with the working stiffs in the megalithic office towers he was passing. Elaine went off to work at eight. Barbie bounced off to school shortly afterward. Alone, Mitch read the *Sun*, had a second cup of coffee, then popped on the tube from nine to eleven. *Canada AM:* nine to nine-thirty. Today they'd had a father-son modeling team, how not to argue with your teens, aphrodisiacs, and five centenarians. *Let's Make a Deal* followed at nine-thirty. A guy dressed like a carrot traded a vacation in Marseilles for Door No. 3 and ended up with a set of light green inflatable patio furniture. The sap. *Donahue* rolled on from ten to eleven.

Mitch wouldn't know how to change the routine. He didn't want to change the routine. The routine had become narcotic, somehow even more so since Mario had been killed.

The caterwauling of a Jamaican trio assaulted him from the skimmer's Blaupunkt — the latest hypo-hit, pumped to its No. 1 post via the New York media.

And ya love me
And ya love me in the night
And in the mornin'
In the mornin' with all yer might
So let's get blitzed
Yeah, blitzed....

Blitzed, my ass, thought Mitch. A wail of ecstatic anguish and tribal lust was accompanied by the Beat, the Beat, the Beat....

He flipped the station to something more befitting his maturing tastes. As a soapy song from the mid-eighties slith-

ered in, he settled back more comfortably.

Pulling into Station 52 on College Street, Mitch reflected that being a Toronto cop was not what it used to be — either as a job, or for him personally. It had changed fundamentally since he had taken the Solo Option the union had negotiated in the spring.

He didn't want another partner. Not after what he'd gone through when Mario had been killed. Too hard, he thought. Much too hard.

Christ. Mitch was even little Tony's godfather.

And they still hadn't caught the punks who'd done it.

Bastards.

Blitzed, my ass. Get blitzed yourself, asshole.

I've got a Barking Dog now. No more fucking around.

None.

It was a week before he had a chance to use it the way he wanted. But he knew his time would come. He was patient.

Idling the skimmer down the lane servicing the stores on the north side of Danforth, he caught it in his peripheral vision: the swing of a beam of light across a glazed window. He cut the engine, deactivated the window, listened.

Nothing.

Adrenalin flushed through his system; his nocturnal vision sharpened.

The skimmer door swung up. He waited in the darkness, breath held.

It was there again. Then gone.

He drew his gun, caressed the trigger.

Sliding silently out of his vehicle, he approached the rear door of the store where he had seen the beam.

There it was again. He tensed.

The rear door had been expertly jimmied. He pushed it open, slowly, carefully, like moving a sleeping baby, and peered in.

As he watched from the darkness, Mitch saw the guy rifle the cash drawer, stuff his pockets with cigarettes and pocket lighters and trinkets and junk that wasn't fit to steal. Some poor old Greek, he thought, was losing the guts of his variety store to this punk. Look at him.

Rage filled him as he watched.

"Freeze!"

The punk froze.

"Hands on your head! Now!"

In slow motion, the punk complied, his back still to Mitch. Mitch had his gun pointed stiffly at him as he stepped from the shadows. The punk's flashlight was sitting on the counter, still turned on, providing surreal illumination to the scene.

"Lace those fingers together and don't move a muscle!"

Mitch stepped within four feet of him, holstered the gun, and withdrew his Defender. He placed the electric bully on the punk's shoulder, sliding its cool, hard surface along his neck, letting him know it was there. Letting him think about it.

"If you even twitch, even *think* about twitching, I'll bolt you so hard your brains won't unscramble for weeks."

"Hey man, easy. I'm easy."

At arm's length, Mitch frisked him from the ankles up. The punk had the usual boot-knife — nine-inch, double-edged. Mitch pocketed it. In his left hip pocket, Mitch found a commando knuckle-knife: 440 stainless steel, 5½ inches closed, mat black handle with black Teflon-coated blade. He could slit your throat or knock your teeth out. Options. Nice. Jesus, thought Mitch — and I'm only halfway up this guy....

Under the punk's left arm, Mitch found the concealable shoulder holster. But what he found in it, though, was the topper.

Mitch turned it over in his hand reverently, his brain spinning. *A laser gun.* A goddamned laser gun! The guy was a walking arsenal! Christ....

Mitch hefted it, weighed it, angry. A Bausch & Lomb, imported. Lighter than a flashlight — burn a hole in you neater than a pin. And a punk like this has it, while we continue to be issued the police special: the same Smith & Wesson .38 that we've had for the last twenty-five years!

In his mind's eye, he saw his own antiquated weapon, the bluing worn away. Budget, they were always told. That was the reason. Same reason why the force couldn't spare the manpower to have everyone doubled up at all times — why they'd accepted the Solo Option.

Mario had been blown away by a guy with a .45 Magnum — after he'd worked him over with a sap glove.

Bastards, he thought. His hand began to shake as he simmered with pent-up fury.

Hitching the Defender back into his belt, Mitch stepped back. He leveled the laser at the punk.

"Turn around, very, very slowly."

The punk was hard, slight, sinewy. His mouth was a thin pencil line. About twenty-five years old. Old enough to know better.

"Did you ever kill anyone with this?" Mitch asked abruptly, indictating the exotic weapon in his hand. The punk's eyes narrowed.

"No," he said.

A piercing cold shot through Mitch's side: ice formed by boldness, insolence, and injustice. A glacier of terror, outrage, the crystal-cold of space.

The coldness of death. Of truth.

"You fucker, you," Mitch said. When he slowly, deliberately began to squeeze the trigger, the punk's eyes widened in comprehension of what was going to happen.

Mitch squeezed the plastic trigger. Again. A needle of light. Twice through the heart. No sound.

His mouth and eyes frozen open, the punk slid to the floor, a handful of Bic lighters spilling from his jacket pocket onto the hard linoleum with a brittle clattering.

Fucker, Mitch thought.

At 9 P.M. Mitch called home from a V-booth. Barbie's face blossomed on the screen.

"Daddy! Hi!"

"Hi, sweetheart, how are you?"

"Fine. Our class went to the circus at the Gardens today, Daddy. They shot a man out of a cannon!"

Jesus, thought Mitch, smiling. The circus. Probably the same guy who got shot out of the cannon thirty years ago when I was there with my class. Some things never change. Thank goodness.

"You'll have to tell me all about it. Mommy there?"

"She went out right after dinner. Mrs. Chan's staying with me till she gets back."

"Oh?" Mitch was perturbed. Elaine wasn't home much in the evenings lately when he called. "Where'd she go?"

"To Jan's. Mommy said she phoned her at work and asked her to come over this evening — to talk, she said."

"O.K. ... let me speak to Mrs. Chan — O.K., dear? Bye-bye. Love you."

Barbie blushed and moved out of the picture. Their elderly Chinese neighbor sat in her place.

"Hello, Mrs. Chan. How are you?"

"Fine, Mr. Helwig. Yourself?"

"Good, good.... What time did Elaine say she'd be back?"

"She said early — by eleven."

"Fine. Thanks for coming over, Mrs. Chan."

"My pleasure, Mr. Helwig. Barbie and I get along just fine. Don't worry."

"Say goodnight to Barbie for me — and take care of yourself."

"Not to worry. I will."

The screen went blank.

She's out again, Mitch thought. Third night this week — and always at Jan's. Spends too much time there since Jan's marriage collapsed.

At Jan's?...

Sliding his hands into his pockets on his way back to the skimmer, he was delivered from his reverie by the cool, contoured shaped of the laser gun there.

It was, he knew, virtually impossible to catch him. Especially with an unregistered weapon. Armed with it and his Barking Dog, the world began to emerge in clear, vivid images.

When Mitch checked out of the station at ten, the Bausch & Lomb laser was securely inside the shirt in his duffle bag. This goes with me, he thought. I'll find a safe place for it. Anyplace I pick is a better place than under that punk's arm.

" 'Night, Mitch."

" 'Night, Charlie."

"See ya, Mitch."

"Yeah. You, too."

"Oh, Mitch?"

"Yeah?" He turned to see who had called him. It was Captain Karoulis.

"How'd your first week on Solo go?"

Mitch made a tight line with his

mouth and nodded. "O.K., Captain. O.K."

"Good. You're not sorry you've opted for it, are you?"

"No. You don't replace a partner so easy, you know. I want to go alone for a while."

"Mario was the best."

They were both silent. There was nothing to say.

"Anyway, just asking." He put his hand on Mitch's shoulder.

Mitch stared into his superior officer's concerned gray eyes. "Can I ask you something, Captain?"

"Sure. Anything."

"You did recommend me for promotion last month, didn't you? I mean, with your recommendation, and my record, and my grades on the exams, I've got a pretty good shot at it, don't I?"

They stared at one another.

"Mitch, I gave you the highest recommendation I could think of. Said you were exceptional leadership material. You've got a very, very good shot at it."

Mitch was prepared for it — even expected it. But the lance of insincerity was still stunningly chilling as it gored his side.

The captain's hand squeezed his shoulder with false assurance. Mitch's eyes dropped.

"But you know," the captain continued, "the competition's tough. Real tough." He shook his head, looked away. "So, promotion or not, we'll still think of you as the best!" He looked once more straight into Mitch's eyes and smiled. "Don't think about it, Mitch. It's *you* we want, not your rank. That stuff doesn't matter."

Only mild tingles now, Mitch noted. Small icicles, dripping in the spring thaw.

He shrugged. "And Mario? His wife'll get all the insurance? And the plaque from the mayor?"

"Yes, Mitch. There's nothing to worry about there. Nothing." His eyes softened.

There was no frigid signal accompanying this. At least, thought Mitch, that much is true. At least there's some decency left somewhere — for the dead.

It was probably, Mitch realized, the only reason he didn't kill Karoulis right then and there.

When he heard the front door click open, Mitch checked his watch. 11:10 P.M. He was lying on their bed, his arms folded up behind his head, waiting. His stockinged feet were crossed. He hadn't bothered to undress yet.

This, he thought, is it. This is where I find out the truth about my marriage. The dogs are gonna bark, one way or the other. I've spent, he mused, most of our life's savings on this device under my shirt, just for a chance to finally know the truth. Just a bit of truth. Finally.

How many people get even that?

Mitch could hear Elaine taking her

coat off and hanging it up in the hall closet.

His palms were sweating, his heart hammering.

The truth.

The truth was that he had married Elaine Barry ten years ago, that she had been a vivacious girl of twenty-four, that they had an eight-year-old daughter whom he loved more than his own life. And that they had gotten ten years older. And they had weathered it. Even with his shitty cop hours, seldom home for dinner. Seldom home for anything, for that matter.

And the fluctuating mortgage rates, and the union demands, and the orthodonist, and Barbie's birthday parties, and their lovemaking — a wind that blew both hot and cool — and morning coffee in the summer and burned toast in the fall....

He heard her coming up the stairs.

The electrode tickled his side, a hound deciding whether to whine and sniff or howl at the moon.

And Mario....

The truth.

As the bedroom door opened, Mitch reached under his shirt as if to scratch, and pulled the electrode from his side. He let it dangle uselessly, a muzzled dog.

"Hi, dear. You waiting for me?"

"Yes."

"I'm really tired. Jan is driving me crazy. What I want more than anything else is a shower and some sleep. Barbie O.K.?"

"Just fine."

"You look a bit tired."

"Yeah. A bit."

"I'm going to the bathroom."

The truth was, Mitch knew, that this woman, who was once the girl he married, came home to him, from wherever, cared for him, talked to him, and slept with him. He liked to see her undressing in their room. He liked to listen to her. He liked talking to her. He loved their daughter.

It was enough. It was more than enough. It was the truth.

When she climbed into bed with him, he snuggled close to her, her back to his front, and cupped her breast as he always did. And they slept.

The next morning, after Elaine had left for work and Barbie had gone to school, Mitch broke the routine he had established for himself. There was no second cup of coffee, no newspaper, no *Canada AM*, no *Let's Make a Deal* or *Donahue*. Instead, he got out his daughter's inexpensive portable Lloyd's tape recorder, seated himself on the sofa, punched it on *Record*, and made eight simple statements into it, spacing each about thirty seconds apart. Then he got his Barking Dog from his duffle bag, slipped the shiny silver rectangle into his shirt pocket, and attached the electrode to his left side.

He inhaled deeply, calming himself.

It didn't work. He tried again.

There ... a little better....

He leaned forward, pressed *Play*, settled back and waited for the sound of his own voice. It began.

"I want to know if Elaine was at Jan's last night," he heard himself say. Ice formed in his left side burrowing inward.

"I want to kill punks like the one last night." Nothing. True.

"I want to be a cop." A tremor, a shiver of uncertainity. Indefinite.

"I want to be promoted next month." Nothing. No reaction. The truth.

"I want to kill Captain Karoulis." Intense cold. Mitch nodded with relief.

"I want a partner again." There it was again: the shivery tickle of uncertainty. Good enough, thought Mitch. Good, honest uncertainty.

Mitch suddenly understood the pope.

"I want Mario back." Not a tingle — the unwavering truth. Mitch swallowed, feeling cleansed.

"I want to keep my Barking Dog." What began as a slow chill dropped rapidly to a sub-zero frost, penetrating deep into his vitals. The thaw seemed a long time in coming, and when it did, the catharsis was complete.

In ways that Mitch had never anticipated, his Barking Dog had indeed helped the world emerge in clear, vivid images. He finally knew what to do. It was so simple.

At 10:15 A.M. sharp, Mitch was sitting in his skimmer outside Thorncliffe Public School. When the recess bell rang, he stared at the door through which he knew Barbie would have to emerge. The skimmer door swung up, and he stood there, filling his chest zestily and smiling.

There she was. She was with a friend, talking and giggling.

"Barbie!" he shouted, waving.

She looked up, puzzled, then smiled and waved back. "Daddy!" she cried, then ran to the steel wire fence that separated them. "What are you doing here?"

"I'm on my way to work, sweetheart, and was just passing by," he lied. "Wanted to ask you a couple of things."

"What is it? Anything wrong?"

"No, no ... nothing's wrong.... Say — you remember that guy that was shot out of the cannon at the circus you went to with your class?..."

"Sure, I remember."

"Well, I never did get to talk with you about him, and I got to thinking.... What do you think he thinks about as he's flying through the air?"

"What?" she said. "Daddy," her eyes were rolling and a corner of her mouth was twisted wryly, "you are sometimes truly weird." She placed her tiny hands on her bony hips in a stance intended to convey her mock concern, and tilted her head on a jaunty angle.

"It seemed like a good question to me," he said with equally mock seriousness.

"You came to school to ask me what I think the guy thinks about as he flies through the air? Really? I mean, *really?*"

"Best question I could think of," he replied, shaking his head.

"Well..."

"C'mon, c'mon ... I got to go to work...."

"I think he wonders if he's going to land in the net. What do *you* think he thinks about?"

"I think he thinks about...." He looked from side to side, playing the game of imparting information that might violate the National Secrets Act. "...what an absolutely, fantastically lucky guy he is to have a clever, beautiful daughter...."

She beamed and blushed simultaneously. "*Daddy!* You're teasing me!"

"No. I'm not. It's what I think. But enough of him. One more question, then I'll let you go...."

"Yes?"

"Do you love me?"

Barbie clucked her tongue and rolled her eyes again. "You *know* I do! Silly...."

It was true. Mitch did know it. It was the one thing he knew without a Barking Dog — knew with a certainty that Pope Martin would have envied. It was the only thing, he had realized after listening to his own litany of statements this morning, that he had never doubted.

"I love you, too," he said. And this, too, was true.

He waved to her as she stood, separated from him by the steel wire fence and years of innocence, and she waved back. From now on, he thought, I'll be my own Barking Dog.

On the seat of the skimmer, beside him when he sat down, was his duffle bag. Inside it was the Barking Dog and the Bausch & Lomb laser, neither of which he would need again.

Without a second thought, he dropped both the Barking Dog and the laser gun into the skimmer's disposal unit — more than ten thousand dollars worth of barterable goodies, he knew. Within minutes, they would be meaningless cinders, easily disposed of. Gone. Forever.

Now there was only one other thing left to do. When he got to the station, he would ask Karoulis how long it would be before he could get another partner.

I know, he thought. Yes, I know what he thinks about as he's flying through the air.

In which Commodore Grimes (whose last appearance here was in "Grimes and the Odd Gods" June 1983) takes on a temporary job — shipping supplies to a prison satellite — with unusual consequences...

Grimes and the Jailbirds

BY

A. BERTRAM CHANDLER

Have you ever, in the course of your long and distinguished career, been in jail, Commodore?" asked Kitty Kelly after she had adjusted the lenses and microphones of her recording equipment to her satisfaction.

"As a matter of fact I have," said Grimes. He made a major production of filling and lighting his pipe. "It was quite a few years ago, but I still remember the occasion vividly. It's not among my more pleasant memories...."

"I should imagine not," she concurred sympathetically. "What were you in for? Piracy? Smuggling? Gunrunning?"

"I wasn't *in* in the sense that you assume," he told her. "After all, there are more people in a jail than the convicts. The governor, the warders, the innocent bystanders...."

"Such as yourself?"

"Such as myself."

It was (he said) when I was owner-master of *Little Sister*. She was the flagship and the only ship of Far Traveler Couriers, the business title under which I operated. She was a deep-space pinnace, and I ran her single-handed, carrying small parcels of special cargo hither and yon, the occasional passenger. Oh, it was a living of sorts, quite a good living at times, although, at other times, my bank balance would be at a perilously low ebb.

Well, I'd carried a consignment of express mail from Davinia to Helmskirk — none of the major lines had anything making a direct run between the two planets — and I was now berthed at Port Helms waiting for something to turn up. The worst of it all was that Helmskirk is not the sort of world upon which to spend an enforced

vacation — or, come to that, any sort of vacation. There is a distinct shortage of bright lights. The first settlers had all been members of a wowserish religious sect misnamed the Children of Light — it was founded on Earth in the late twentieth century, Old Reckoning. Over the years their descendants had become more and more wowserish.

The manufacture, vending, and consumption of alcoholic beverages were strictly prohibited. So was smoking — and by "smoking" I mean smoking *anything*. There were laws regulating the standards of dress — and not only in the streets of the cities and towns. Can you imagine a public bathing beach where people of both sexes — even children — are compelled to wear neck-to-ankle, skirted swimming costumes?

There were theaters, showing both live and recorded entertainment, but the plays presented were all of the improving variety, with virtue triumphant and vice defeated at the end of the last act. I admit that some of the clumsily contrived situations were quite funny, although not intentionally so. I found this out when I laughed as a stern father turned his frail, blonde daughter, who had been discovered smoking a smuggled cigarette, out into a raging snowstorm. Immediately after my outbreak of unseemly mirth, I was turned out myself, by two burly ushers. Oh, well, it wasn't snowing, and it was almost the end of the play, anyhow.

It wouldn't have been so bad if the local customs authorities had not done their best to make sure that visiting spacemen conformed to Helmskirkian standards whilst on the surface of their planet. They inspected my library of playmaster cassettes and seized anything that could be classed as pornographic — much of it the sort of entertainment that your maiden aunt, on most worlds, could watch without a blush. These tapes, they told me, would be kept under bond in the customs warehouse and returned to me just prior to my final lift-off from the Helmskirk System. They impounded the contents of my grog locker and even all my pipe tobacco. Fortunately, I can, when pushed to it, make an autochef do things never intended by its manufacturer, and so it didn't take me long to replenish my stock of gin. And lettuce leaves from my hydroponics minifarm, dried and suitably treated, made a not-too-bad tobacco substitute.

Nonetheless, I'd have gotten the hell off Helmskirk as soon as the bags of express mail had been discharged if I'd had any definite place to go. But when you're tramping around, as I was, you put your affairs into the hands of an agent and wait hopefully for news of an advantageous charter.

So Messrs. Muggeridge, Whitelaw, and Nile were supposed to be keeping their ears to the ground on my behalf, and I was getting more and more bored, and every day doing my sums

— or having the ship's computer do them for me — and trying to work out how long it would be before the profit made on my last voyage was completely eaten up by port charges and the like. For the lack of better entertainment I haunted the Port Helms municipal library — at least it was free — and embarked on a study course on the history of this dreary colony. Someday I shall write a book — *The Galactic Guide to Places to Stay Away From....*

The fiction in the library was not of the variety that is written to inflame the passions. It was all what, during the Victorian era on Earth, would have been called "improving." The factual works were of far greater interest. From them I learned that the incidence of crime — *real* crime, not such petty offenses as trying to grow your own tobacco or brew your own beer — on Helmskirk was surprisingly high. Cork a bottle of some fermenting mixture — and any human society is such a mixture — too tightly and the pressures will build up. There was an alarmingly high incidence of violent crime — armed robbery, assault, rape, murder.

I began to appreciate the necessity for Helmskirk's penal satellite, a smallish natural moon in a just under twenty-four-hour orbit about its primary. Not only was it a place of correction and/or punishment for the really bad bastards, but it also housed a large population of people who'd been caught playing cards for money, reading banned books, and similar heinous offenses. If I'd been so unfortunate as to have been born on Helmskirk, I thought, almost certainly I should have been acquainted with the maze of caverns and tunnels, artificial and natural, that honeycombed the ball of rock.

As the days wore on I'd settled into a regular routine. The morning I'd devote to minor maintenance jobs. Then I'd have lunch. Before leaving the ship after this meal, I'd make a telephone call to my agents to see if they'd anything for me. Then I'd stroll ashore to the library. It was a dreary walk through streets of drably functional buildings, but it was exercise. I'd try to keep myself amused until late afternoon, and then drop briefly into the agents' office on the way back to *Little Sister.*

Then the routine was disrupted.

As I entered the premises, old Mr. Muggeridge looked up accusingly from his desk, saying, "We've been trying to get hold of you, Captain."

I said, "I wasn't far away. I was in the municipal library."

"Hmph. I never took you for a studious type. Well, anyway, I've a time charter for you. A matter of six local weeks, minimum."

"Where to?" I asked hopefully.

"It will not be taking you outside the Helmskirk System," he told me rather spitefully. "The prison tender, the *Jerry Falwell,* has broken down. I am not acquainted with all the technical details, but I understand that the

trouble is with its inertial drive unit. The authorities have offered you employment until such time as the tender is back in operation."

I went through the charter party carefully, looking for any clauses that might be turned to my disadvantage. But Muggeridge, Whitelaw, and Nile had been looking after my interests. After all, why shouldn't they? The more I got, the more their rake-off would be.

So I signed in the places indicated and learned that I was to load various items of stores for the prison the following morning, lifting off as soon as these were on board and stowed to my satisfaction. Oh, well, it was a job and would keep me solvent until something better turned up.

It was a job, but it wasn't one that I much cared for. I classed it as being on a regular run from nowhere to nowhere. The atmosphere of Helmskirk I had found oppressive; that of the penal satellite was even more so. The voyage out took a little over two days, during which time I should have been able to enjoy my favorite playmaster cassettes if the customs officers had seen fit to release them. But rules were rules, and I was not leaving the Helmskirk System. And the moon, which was called Sheol, was very much part of it.

On my first visit I did not endear myself to the prison governor. I'd jockeyed *Little Sister* into a large air lock set into the satellite's surface and then left my control room for the main cabin. I opened the air lock doors and then sat down to await whatever boarders there would be — somebody with the inevitable papers to sign, a working party to discharge my cargo, and so on and so forth. I was not expecting the ruler of this tiny world to pay a call in person.

He strode into the ship, a tall man in dark gray civilian clothes, long-nosed, sour-featured, followed by an entourage of black-uniformed warders. "Come in, come in!" I called. "This is Liberty Hall. You can spit on the mat and call the cat a bastard!"

He said, "I do not see any cat. Where is the animal? The importation of any livestock into Sheol is strictly contrary to regulations."

I said, "It was only a figure of speech."

"And a remarkably foul-mouthed one." He sat down uninvited. "I am the governor of this colony, Mr. Grimes. During each of your visits here you will observe the regulations, a copy of which will be provided you. You will be allowed, should time permit, to make the occasional conducted tour of Sheol so that you may become aware of the superiority of our penal system to that on other worlds. There will, however, be no fraternization between yourself and any of our inmates. There will be no attempt by you to smuggle in any small luxuries. One of the officers of the *Jerry Falwell* made such an

attempt some months back. He is now among our ... guests, serving a long sentence."

"What did he try to smuggle in?" I asked.

"It is none of your business, Mr. Grimes. But I will tell you. It was cigarettes that he had illegally obtained from a visiting star tramp. And I will tell you what he hoped to receive in exchange. Mood opals. And the penalty for smuggling out mood opals is even greater than that for smuggling in cigarettes."

"What are mood opals?" asked Kitty.

"Don't you know? They were, for a while, very popular and very expensive precious stones on Earth and other planets, especially the Shaara worlds. The Shaara loved them. They weren't opals, although they looked rather like them. But they were much fierier, and the colors shifted, according, it was said, to the mood of the wearer, although probably it was due to no more than changes in temperature and atmospheric humidity. They were found only on — or in, rather — Sheol. They were actually coprolites, fossilized excrement, all that remained of some weird, rock-eating creatures that inhabited Sheol and became extinct ages before the colonization of Helmskirk. The mood opals became one of Helmskirk's major moneymaking exports. They were never worn by anybody on Helmskirk itself, such frivolity as personal jewelry being illegal."

"How come," asked Kitty, "that we've never seen mood opals here? Most Terran fads drift out to this part of the Galaxy eventually."

"There aren't any mood opals anymore," Grimes told her. "It seems that the polishing process, which removed the outer crust, exposed the jewels to the atmosphere and to radiation of all kinds. After a few years of such exposure, the once-precious stones would crumble into worthless dust."

Well (he went on), that was my first visit to Sheol. Naturally it sparked my interest in the mood opal trade. I suggested to my agents that they try to organize for me the shipment of the next parcel of precious stones to wherever it was they were going. But the Interstellar Transport Commission had that trade tied up. Every six months one of their *Epsilon*-class freighters would make a very slight deviation during her voyage from Waverly to Earth, and it was on Earth — in Australia, in fact — where the opal polishers plied their trade. I pointed out that it was only a short hop, relatively speaking, from Helmskirk to Baroom, the nearest Shaara colony world. Surely, I said, the Shaara could polish their own mood opals. But it was no-go. They always had been polished in some place called Coober Peedy, and they always would be polished in Coober Peedy, and that was that.

Meanwhile, I made friends among the warders on Sheol. Some of them were almost human. Their close association with the quote, criminal, unquote classes had rubbed off much of the arrogant sanctimoniousness so prevalent on the primary. There was one — Don Smith was his name — whom I even trusted with one of my guilty secrets. He would share morning coffee, generously spiked with the rum that I had persuaded the autochef to produce, with me. When there was any delay between the discharge of the cargo I had brought and the loading of the mood opals that I should be taking back, he would take me on conducted tours of the prison.

There were the hydroponic farms, where most of the workers were women, some of them, despite their hideous zebra-striped coveralls, quite attractive. Some of them, and not only the attractive ones, would waggle their hips suggestively and coo, "Hello, spaceman! I'll do it for a cigarette!" And Don would grin and say, "They would, you know. I can arrange it for you." But I refused the offer. I didn't trust him all that much. Besides, my stock of cigarettes — which I kept aboard only for hospitality and not for my own use — had been impounded by the blasted customs.

There were the workshops, where convict labor, all men, assembled machines at whose purpose I could do no more than guess; I haven't a mechanical mind. There was the printery and there was the bookbindery. I was invited to help myself from the stacks of new books, but I did not take advantage of the offer. Collections of sermons of the hellfire-and-damnation kind are not my idea of light reading to while away a voyage. There was the tailor's shop, where both warders' uniforms and convicts' uniforms were made. There were the kitchens and there were the messrooms. (The prison officers' food was plain but wholesome; that for the convicts, just plain, definitely so.) There were the tunnels in which the mood-opal miners worked. It was in one of these that I was accosted by a man with dirt-streaked face and sweat- and dust-stained coveralls.

"Hey, Skipper!" he called. "How about my hitching a ride in your space buggy away from here? I can make it worth your while!"

I stared at him. I didn't like the cut of his jib. Under the dirt that partially obscured his features was a hard viciousness. He had the kind of very light and bright blue eyes that are often referrred to as "mad." He looked as though he'd be quite willing to use the small pickax he was holding on a human being rather than on a rock.

I decided to ignore him.

"Stuck-up bastard aren't you, Skipper. Like all your breed. You deep-spacers think yourselves too high and mighty to talk to orbital boys!"

"That will do, Wallace!" said Don sharply.

"Who's talking? You're not in

charge of this work party."

"But *I* am." Another warder had come up. He was holding one of the modified stun guns that were the main weaponry of the guards; on the right setting (or the wrong setting, if you were on the receiving end) they could deliver a most painful shock. "Get back to work, Wallace. You're nowhere near your quota for the shift — and you know what *that* means!"

Apparently Wallace did and he moved away. Don and I moved on.

"A nasty piece of work," I said.

"He is that," agreed Don, "even though he is a spaceman like yourself."

"Not too like me, I hope."

"All right. Not *too* like you. He got as high as mate of the *Jerry Falwell*, and then he was caught smuggling cigarettes and booze in and mood opals out. If only the bloody fool had done his dealing with the right people and not with the convicts! I suppose that it's poetic justice that he's serving his time here as an opal miner."

I supposed that it was.

And then we wandered back to *Little Sister*, where, after half an hour or so, I loaded two small bags of mood opals — in their rough state they looked like mummified dog-droppings — and embarked a couple of prison officers who were returning to the primary for a spell of leave. Although they were (a) female and (b) not unattractive, they were not very good company for the voyage.

* * *

My next trip back from Sheol to Helmskirk I had company again. Unexpected company. For some reason I decided to check the stowage in the cargo compartment; there was a nagging feeling that everything was not as it should be. This time there were no mood opals, but there were half a dozen bales of clothing, civilian work coveralls, that had been manufactured in the prison's tailor's shop. At first glance nothing seemed amiss. And then I saw a pool of moisture slowly spreading on the deck from the underside of one of the bales. Aboard a ship, any kind of ship, leaking pipes can be dangerous. But there were no pipes running through and under the deck of the compartment; such as there were were all in plain view on the bulkheads, and all of them were intact.

Almost I dipped my finger into the seepage to bring it back to my mouth to taste it. Almost. I was glad that I hadn't done so. I smelled the faint but unmistakable acridity of human urine.

I went back to the main cabin, to my arms locker, and got out a stun gun and stuck it into my belt. And then, very cautiously, I unsnapped the fasteners of the metal straps holding the bale together. The outer layers of folded clothing fell to the deck. I stepped back and drew my stun gun and told whoever it was inside the bale, in as stern a voice as I could muster, to come out. More layers of clothing fell away, revealing a sort of cage of heavy wire in which crouched a young

woman. She straightened up and stepped out of the cage, looking at me with an odd mixture of shame and defiance.

She said, "I shouldn't have had that last drink of water, but I thought that I should half die of thirst if I didn't...." She looked down at the sodden legs of her civilian coveralls and managed an embarrassed grin. "And now I suppose, Captain," that you'll be putting back to Sheol and handing me over."

I said, "I can hand you over just as well at Port Helms."

She shrugged. "As you please. In that case, could I ask a favor? The use of your shower facilties and the loan of a robe to wear while my clothes are drying ... I have to wash them, you know."

I thought, *You're a cool customer.* And I thought, *I rather like you.*

Despite her ugly and now sadly bedraggled attire, she was an attractive wench: blonde, blue-eyed, and with a wide mouth under a nose that was just retroussé enough, just enough, no more. She had found some way to tint her lips an enticing scarlet. (The women convicts, I had already learned, used all sorts of dyes for this purpose, although cosmetics were banned.) And I remembered, too, all the fuss there'd been about taking showers and such, all the simpering prudery, when I had carried those two women prison officers.

So I let her use my shower and hang her clothes in my drying room, and lent her my best Corlabian spider silk bathrobe, and asked her what she would like for dinner. She said that she would like a drink first and that she would leave the ordering of the meal to me.

It was good to be having dinner with a pretty girl, especially one who was enjoying her food as much as she was. The autochef did us proud, from soup — mulligatawny, as I remember — to pecan pie. The wines could have been better; an autochef properly programmed can make quite a good job of beer or almost any of the potable spirits, but as far as, say, claret is concerned, is capable of producing only a mildy alcoholic red ink. Not that it really mattered on this occasion. Everything that I gave my guest to eat and drink was immeasurably superior to the prison food — and, come to that, streets ahead of anything that could have been obtained in any restaurant on Helmskirk.

After the meal we relaxed. I filled and lit my pipe. She watched me enviously. I let her have one of my spare pipes. She filled it with my shredded, dried, and treated lettuce leaf tobacco substitute. She lit it, took one puff, and decided that it was better than nothing, but only just.

"Thank you, Captain," she said. "This has been a real treat. The drinks, the meal, your company...." She smiled. "And I think that you've been enjoying my company, too...."

"I have," I admitted.

"And won't you feel just a little bit

remorseful when you turn me in after we arrive at Port Helms? But I suppose that you've already been in touch with the authorities by radio, while I was having my shower, to tell them that you found me stowed away...."

I said, "I'll get around to it later."

Her manner brightened. "Suppose you never do it, Captain? I could ... work my passage...." The dressing gown was falling open as she talked and gesticulated, and what I could see looked very tempting — and I had been celibate for quite a while. "Before we set down at Port Helms, you can put me back in the bale. The consignees of the clothing are members of a sort of ... underground. They have helped escaped convicts before."

"So your crime was political?"

"You could call it that. There are those of us, not a large number but growing, who are fighting for a liberalization of the laws — a relaxation of censorship, more freedom of thought and opinion.... You're an off-worlder. You must have noticed how repressive the regime on Helmskirk is."

I said that the repression had not escaped my notice.

"But," she went on, "I do not expect you to help me for no reward. There is only one way that I can reward you...."

"*No*," I said.

"No?" she echoed in a hurt, a very hurt, voice.

"No," I repeated.

Oh, I'm no plaster saint, never have been one. But I have my standards. If I were going to help this girl, I'd do it out of the kindness of my heart and not for reward. I realize now that I was doing her no kindness. In fact, she was to tell me just that on a later occasion. A roll in the hay was just what she was needing just then. But I had my moments of high-minded priggishness, and this was one of them. (Now, of course, I'm at an age when I feel remorse for all the sins that I did not commit when I had the chance.)

She said, "People have often told me that I'm attractive. I would have thought.... But I can read you. You're a businessman as well as a spaceman. You own this little ship. You have to make a profit. You're afraid that if it's discovered that you helped me, you'll lose your profitable charter. Perhaps you're afraid that you'll become one of the inmates of Sheol yourself, like Wallace...."

"I never said that I wasn't going to help you," I told her. "But there are conditions. One condition. That if you are picked up again, you say nothing about my part in your escape."

When she kissed me, with warm thoroughness, I weakened — but not enough, not enough. And before the sleep period I rigged the privacy screen in the main cabin, and she stayed on her side of it and I stayed on mine. The next "day" — and I maintained Port Helms standard time while in space — she dressed in her all-concealing coveralls, which were now dry, instead of in

my too-revealing bathrobe. We had one or two practice sessions of repacking her in the bale. And before long it was time for me to repack her for good — as far as I was concerned.

And I made my descent to the apron at Port Helms.

There was, of course, something of a flap about the escape of a prisoner from Sheol. The authorities, of course, knew that if she had escaped, she must have done so in *Little Sister* — but I was in the clear. The ship was under guard all the time that she was berthed in the air lock. Too, there was a certain element of doubt. In the past convicts had hidden for quite a while in unexplored tunnels, and some had even died there. Convicts had been murdered by fellow immates and their bodies fed into waste disposal machinery.

And then Evangeline — that was her name — was picked up, in Calvinville. She had been caught leaving pamphlets in various public places. She was tried and found guilty and given another heavy sentence, tacked on to the unexpired portion of her previous one. She kept her word insofar as I was concerned, saying nothing of my complicity. She even managed to protect the clothing wholesalers to whom her bale had been consigned. Her story was that this bale could be opened from the inside, and that after her escape from it, at night, she had tidied up after herself before leaving the warehouse.

Inevitably, I got the job of returning her to incarceration. (The repairs to the prison tender *Jerry Falwell* were dragging on, and on, and on.) She was accompanied by two sourpussed female prison officers returning to Sheol from planet leave. These tried to persuade me — *persuade?* Those arrogant bitches tried to *order* me — that during the short voyage there should be two menus, one for the master, me, and the warders, and the other, approximating prison fare, for the convict. I refused to play, of course. The poor girl would eat well while she still had the chance. But there were no drinks before, with, or after meals, and I even laid off smoking for the trip.

And so I disembarked my passengers and discharged my cargo at Sheol. I'd not been able to exchange so much as a couple of words with Evangeline during the trip, but the look she gave me before she was escorted from the ship said, *Thanks for everything.*

So it went on, trip after trip.

Then it happened. I was having an unusually long stopover on Sheol, and my friend, Don Smith, suggested that I might wish to see, as he put it, the animals feed. I wasn't all that keen — I've never been one to enjoy the spectacle of other people's misery — but there was nothing much else to do, and so I accompanied him through the maze of tunnels to one of the mess halls used by the male prisoners. Have you

ever seen any of those antique films about prison life made on Earth in the latter half of the twentieth century? It was like that. The rows of long tables, covered with some shiny gray plastic, and the benches. The counter behind which stood the prisoners on mess duty, with aprons tied on over their zebra-striped coveralls, ladling out a most unsavory-looking — and -smelling — stew into the bowls held out by the shuffling queue of convicts. The guards stationed around the walls, all of them armed with stun guns and all of them looking bored rather than alert.... The only novel touch was that it was all being acted out in the slow motion imposed by conditions of low gravity.

Finally, all the convicts were seated at the long tables, their sluggishly steaming plastic bowls — those that were still steaming, that is; by this time, the meals of those first in the queue must have been almost cold — before them, waiting for the prison padre, standing at his lecturn, to intone grace. It was on the lines of: *For what we about to receive this day may the Lord make us truly thankful.*

As soon as he was finished, there was a commotion near the head of one of the tables. A man jumped to his feet. It was, I saw, Wallace, the ex-spaceman.

"Thankful for this shit, you smarmy bastard?" he shouted. "This isn't fit for pigs, and you know it!"

The guards suddenly became alert. They converged upon Wallace with their stun guns out and ready. They made the mistake of assuming that Wallace was the only troublemaker. The guards were tripped, some of them, and others blinded by the bowls of stew flung into their faces. Their pistols were snatched from their hands.

"Get out of here, John," said Don Smith urgently. He pulled me back from the entrance to the mess hall. "Get out of here! There's nothing you can do. Get back to your ship. Use your radio to tell Helmskirk what's happening...."

"But surely your people," I said, "will have things under control...."

"I ... I hope so. But this has been brewing for quite some time."

By this time we were well away from the mess hall, but the noise coming from it gave us some idea of what was happening — and what was happening wasn't at all pleasant for the guards. And there were similar noises coming from other parts of the prison complex. And there was a clangor of alarm bells and a shrieking of sirens and an amplified voice, repeating over and over, "All prison officers report at once to the citadel! All prison officers report at once to the citadel!"

Don Smith said, "You'd better come with me."

"I said, "I have to get back to my ship."

"He said, "You'll never find the way to the air lock."

I said, "I've got a good sense of direction."

So he went one way and I went another. My sense of direction might have served me better if I had not been obliged to make detours to avoid what sounded like small-scale battles ahead of me in that maze of tunnels. And the lights kept going out and coming on again, and when they were on kept flickering in an epilepsy-inducing rhythm. I'm not an epileptic, but I felt as though I were about to become one. During one period of darkness I tripped over something soft, and when the lights came on found that it was a body, that of one of the female prison officers. Her uniform had been stripped from the lower part of her body, and it was obvious what had been done to her before her throat had been cut. And there was nothing that I could do for her.

At last, at long, long last, more by good luck than otherwise, I stumbled into the big air lock chamber in which *Little Sister* was berthed. There were people standing by her. The guards, I thought at first, still at their posts. Then the lights temporarily flared into normal brightness, and I saw that the uniform coveralls were zebra-striped. But I kept on walking. After all, I was just an innocent bystander, wasn't I?

Wallace — it had to be he — snarled, "You took your time getting here."

"What are *you* doing here?" I demanded.

"What the hell do you think? But we wouldn't be here now if we could get your air lock door open."

"And suppose you could, what then?"

"That, Skipper, is a remarkably stupid question."

I looked at Wallace and his two companions. I looked at the sacks at their feet. I could guess what was in them. The lights were bright again, and I saw that the other two convicts were women — and that one of them was Evangeline. She looked at me, her face expressionless.

"What are you waiting for, Skipper?" almost shouted Wallace.

I'm playing for time, I thought, although I hadn't a clue as to what I could do with any time I gained.

Wallace shot me with his stun gun. It wasn't on the *Stun* setting but on that which gave the victim a very painful shock, one that lasted for as long as the person using the gun wished. It seemed to be a very long time in this case, although it could have been no more than seconds. When it was over, I was trembling in every limb and soaked in cold perspiration.

"Want another dose, Skipper?" Wallace demanded.

"You'd better open up, Captain," said Evangeline in an emotionless voice. She was holding a gun, too, pointed in my direction. So was the other woman.

So what could I do? Three, armed, against one, unarmed.

There was more than one way of

getting into *Little Sister*. The one that I favored, if the ship was in an atmosphere, was by voice. It always amused guests. And it worked only for me, although I suppose that a really good actor, using the right words, could have gained ingress.

"Open Sesame," I said.

The door slid open.

And while Wallace and the woman whom I didn't know had their attention distracted by this minor miracle, Evangeline shot them both with her stun gun.

"Hurry," she said to me, throwing the sacks of mood opals into the air lock chamber. "Lend a hand, can't you?"

No, I didn't lend a hand, but I accompanied her into the ship. I used the manual air lock controls to seal the lock. I went forward to the control cab, my intention being to try to raise somebody, anybody, on my radio telephone to tell them what had been happening — and to try to find out what was still happening.

She said, from just behind me, "Get us out of here, Captain."

I asked, "Do you expect me to ram my way out of the air lock chamber?"

She said, "Wallace's men have taken over the air lock control room. If they hear my voice and see my face in their telescreen, they'll open up."

"But there's also a screen," I said, "that gives a picture of the air lock chamber. They must have seen what happened outside the ship, when you buzzed Wallace and the girl."

"Very luckily," she said, "that screen got smashed during the fight when we took over the control center."

She'd seen me operate the NST transceiver when I was making my approach to Port Helms the voyage that she'd stowed away. She got it switched on — the controls were simple — without having to ask for instruction except for the last important one.

"What channel do I call on?"

"Hold it," I said. I had acquired quite a dislike for Wallace but had nothing against his girlfriend. "The air's going to be exhausted from the chamber before the outer doors open."

"Oh, I hadn't thought of that...."

I activated the screens that showed me what was going on outside the ship. (From the control cab our only view was forward.) I saw that Wallace was just getting groggily to his feet, assisted by the girl, who must have made a faster recovery that he had. I spoke into the microphone that allowed me to talk to anybody outside the hull.

"Wallace," I said, "get out of the chamber, fast! It's going to open up — and you know what that means!"

He did know. He raised his right hand and shook his fist. I saw his mouth forming words, and I could guess what sort of words they were. Then he turned from *Little Sister* and made for the door leading into the interior of Sheol at a shambling run, with the girl trailing after. No women and children first as far as he was concerned.

"Channel six," I told Evangeline.

"Evangeline here," I heard her say. "We're all aboard, and the stones. Open up."

"We're relying on you to spend the money you get for the stones where it will do the most good! I hope Wallace can find his way to the nearest Shaara world, where there'll be a market and no questions asked!"

"We'll persuade Grimes to do the navigating."

"Are you taking him with you?" I was annoyed by the lack of interest and regretted, briefly, having allowed Wallace to escape from certain asphixiation. "Stand by. Opening up. Bon voyage."

But opening up took time. The air had to be exhausted from the chamber first. How long would it take Wallace to reach the control center? From my own controls I had a direct view overhead. At last I saw the two valves of the air lock door coming apart, could see the black sky and the occasional star in the widening gap. I had *Little Sister*'s inertial drive running in neutral and then applied gentle thrust. We lifted, until we were hovering just below the slowly opening doors.

Was there enough room?

Yes, barely.

I poured on the thrust and we scraped through, almost literally. And just in time. In the belly-view screen I saw that the doors were closing again, fast. Wallace had reached the control center just too late.

And I kept going.

"Back to Helmskirk," said Kitty Kelly, "to hand that poor girl back to the authorities. They must really have put the boot in this time."

"I said," Grimes told her, "that I kept on going. Not to Port Helms. To a Shaara world called Varoom, where we could flog those stones with no awkward questions asked. I considered that I owed far more loyalty to Evangeline than to the Helmskirk wowsers."

"But what about those prison guards under siege in their citadel? Didn't you owe them some loyalty?"

"One or two of them, perhaps," he admitted. "But what could I have done? And, as a shipmaster, my main loyalty was to my ship."

"But you could have carried reinforcements, police, from Port Helms to Sheol."

"In Little Sister? *She was only a pinnace, you know. Aboard her, four was a crowd. Too, there was one of the Commission's* Epsilon-*class tramps in port. She could be requisitioned as a troopship."*

"But that time charter, Commodore ... weren't you tied by that?"

"Oddly enough, no. The original six weeks had expired and it was being renewed week by week. At the time of the mutiny it was due for renewal."

"And the girl. Evangeline. Did you dump her on that Shaara planet?"

"Of course not," said Grimes vir-

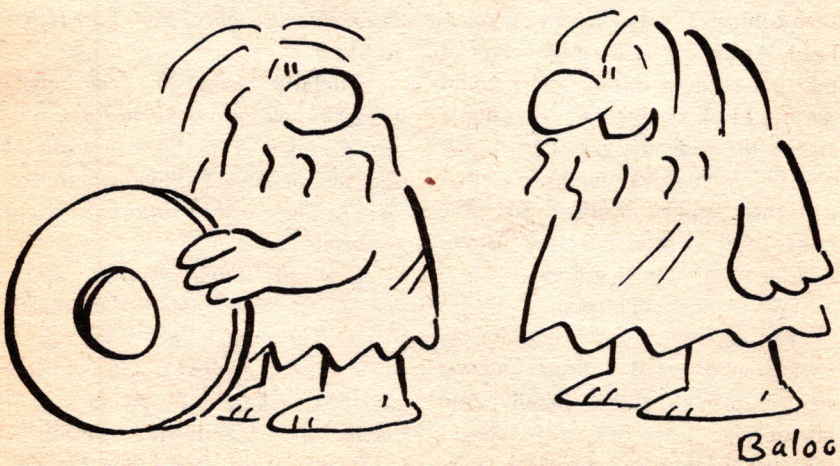
tuously. "I was rather too fond of her by that time. After we sold the jewels, I carried her to Freedonia, a colony founded by a bunch of idealists who'd take in anybody as long as he or she could claim to be a political refugee. I'd have liked to keep her with me, but there were too many legal complications. She had no papers of any kind, and the authorities on most planets demand documentation from visitors, crew as well as passengers. I got into enough trouble myself for having left Helmskirk without my Outward Clearance."

"And during your wanderings, before you got to Freedonia, did you lose your priggish high-mindedness?"

He laughed reminiscently. "Yes. I did let her work her passage, as she put it. And I accepted, as a farewell gift, quite a substantial share of the mood opal money."

She said, not admiringly, "You bastard. I'd just hate to owe you a favor."

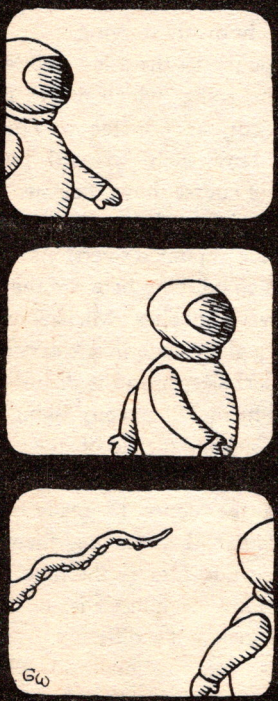
"You've got it wrong," Grimes told her. "I took what she offered because I owed her one."



"Great work — I'll go invent lox."

Films

BAIRD SEARLES



UNABSORBED SHOCKS

Any movie or teleplay about a sentient machine, modern-day model, is inevitably going to bring back memories of *My Mother, the Car,* one of the all-time great fiascos of TV. It would take a better movie than *Christine* to expunge those memories; in fact, MMtC may have hexed the theme for the foreseeable future. But even without them, *Christine* is not likely to go down in history as anything except a movie made to cash in on Stephen King's vast reading public.

Christine is, of course, a Plymouth Fury (or was it a Rhode Island red? — not being of the automotive culture, I get cars confused) whose predominant color is scarlet, naturally. It might have been black, but you'd certainly never catch a blue or beige car doing the things that Christine's up to.

Saved from the scrap heap by a high school kid who can only be charitably described as a hopeless loser, it's love at first key insertion; unfortunately, this affair does not exert a benign influence on Hopeless. In fact, he turns into a sort of automotive Peron, with Christine playing Evita.

This gruesome twosome proceeds to menace anyone who threatens true love, including Hopeless's girl friend, who is not so hardy as Chris. The latter, when again it is nearly reduced to scrap, manages to repair itself; this sort of thing could ruin the economy, putting garages out of business and re-

ducing tow trucks to the ranks of the homeless.

It's total silliness, which is O.K. — silliness makes for some enjoyable cinema. But *this* silliness just isn't much fun. Maybe one has to own a car to appreciate *Christine*'s full impact. On the other hand, a few more mass media phenomena like this and *My Mother, the Car* might permanently scare people off from buying automobiles, and civilization might be saved.

Of greater interest was a TV movie called *Prototype* which, rare for a TV movie and even more rare for a s/f TV movie, received very good reviews in the general press. That's usually off-putting, but in this case the kind words were totally justified.

It's a simple and familiar story, that of the first android encountering human society. But *Prototype* was done with a minimum of melodrama and a maximum of — er — human interest, if it can be called that.

Michael, the android, has been developed on government contract by a team headed by Carl, a Nobel prize winner in physics, an older man with a loving and feisty wife, Dorothy; the couple is childless. Way ahead of schedule, Carl bring Michael home to dinner; Dorothy knows nothing of Carl's work because of security and accept Michael as a rather odd young colleague of her husband's.

Because of the success of this unscheduled field trip, the Pentagon comes to claim its own, and removes Michael to Washington for "tests" and there slightly reprograms him. Carl is infuriated, and is additionally worried as to what uses the government is planning for his creation. (He had testified in the Oppenheimer trial for the defense.)

When Michael is returned — temporarily — Carl takes him and decamps; the two go to Carl's old university town and hole up in a furnished apartment. They are inevitably tracked down; as a solution, Michael offers a gesture that is inhumanly logical and terribly, humanly moving.

Throughout, there is a subtle little subtheme going, which makes *Prototype* a curious *homage* to *Frankenstein*. Many such "created human" stories, of course, have their ties to the great original, and there have been innumerable updated versions of it. What is so edifying here are the overt and covert linkages. Michael is seen watching the movie in a sleazy motel while Carl sleeps, and is disturbed by it. "Did he die?" he keeps asking like a child. (Carl had turned off the film before he saw the end). And he keeps expressing the desire to really read a book rather than having them programmed into him — the first one he gets to read for himself is, of course, *Frankenstein* ("it's different from the movie — more serious...."). The oblique counterpoint to this is Michael's physical resemblence to the creature (as classically portrayed by Karloff) in

a very subtle way. The actor, David Morse, is a personable young man with offbeat looks; he is here given a squared-off, short haircut, and with his odd, high-shouldered torso and just the suggestion of an awkward stiffness in his walk, the likeness slowly becomes unmistakable (on one seeing, I can't be sure whether it was emphasized later in the movie, or just took a while to become apparent). We are (purposefully, I'd guess) told nothing of Michael's creation, but he is certainly a robot rather than a biological construct, since Carl's field is physics; and, at the end, Michael says, "No, don't hold me," as Carl moves to embrace him, "you'll feel the metal."

Morse's performance is what make the film — childish, appealing, stubborn, innocent, inhuman, it is a low-keyed tour de force. He is given excellent support by Christopher Plummer as Carl, whose complex feelings for Michael are those of creator, father, and lover, and Frances Sternhagen (the doctor of *Outland*) as Dorothy.

Prototype is hardly a great movie. But it is adult, intelligent and touches the emotions, and there are very few genre films of which *that* can be said.

Coming soon

Next month: **Stephen King**'s brand-new novella, THE BALLAD OF THE FLEXIBLE BULLET, a compelling story about the relationship between a writer and an editor and the supernatural forces that unite them.

Soon: new novellas by **Frederik Pohl, Marion Zimmer Bradley** and **Jack Vance.** Use the coupon on page 34.

Richard Cowper's last story here was "The Scent of Silverdill," (January 1984). His new story concerns a pair of scientists who come up with a remarkable find — a new variety of seed that increases crop yields by 50% — and move quickly toward the goal of eliminating hunger from the world...

A Message To the King of Brobdingnag

BY

RICHARD COWPER

(For Jim Lovelock F.R.S. — author of "Gaia" — who thought of it)

Last night I dreamed I was a child again, watching my father grafting yet another shoot onto the apple tree in our kitchen garden. He had his back to me, and though I called out to him, he would not turn round and acknowledge me. True, it was only a dream, but if the finger is to be pointed at anyone, should it not be pointed at my father? I wonder what he would say to that if he were alive. Would he pass the buck on to *his* father — and so down the line forever and ever? Sometimes I think that there *are* no identifiable beginnings, only ends. And that surely is what we have here — the last full stop, the ultimate quietus. Unless, of course, you still believe in miracles.

Dad's life ambition was to produce one single tree that carried as many different varieties of fruit as he could induce it to adopt. Two years before his death in 1981, he had four kinds of apple, three kinds of pear, and two different sorts of plum all producing fruit on the same tree. That summer a photographer from the local paper came round and took a picture of him beside his remarkable creation. They printed it over the caption: "Local Plant Wizard Displays the Fruits of His Skill." In the article that accompanied the picture, my father was quoted as saying: "If we work with her and not against her, she'll provide us all with another Garden of Eden." The "her" he referred to was, of course, "Mother Nature."

When my father had his heart attack I was twenty-five years old and eighteen months into my first paid re-

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search job with Biotek. As soon as I heard the news I drove down to Chelmsford from Lincolnshire and went straight to the hospital. My mother and sister were already there. Dad was lying back with his eyes closed, looking gray and shriveled among the pillows. He was wired up to a monitor that was winking away steadily in a corner. A gurney with two gas cylinders was standing beside the bed, and a face mask lay ready to hand. Mother had just begun telling me in a strained whisper how it happened, when Dad opened his eyes. "Hello, Dad," I said. "How are you feeling?"

"Is that you, Clive?" His voice was so weak I barely recognized it.

"That's right," I said. "Who did you think it was?"

"What are *you* doing here, Son?"

"I've come to see how you are."

"It's that bad, is it?"

"Oh, they'll have you out of here in next to no time," I said. "They need the beds."

He managed a faint smile. "How are things up in Grantham?"

"Busy as ever."

"No messages for the king, yet?"

"Not yet," I said. "Just give me a year or two."

At which point a nurse came in, followed by a couple of doctors, and we were ushered out of the room.

"What did he mean about a message for the king?" asked my sister as I was driving her home.

"It's a sort of private joke," I told her. "Something out of *Gulliver's Travels.*"

"Go on."

"I can't remember it offhand," I said. "I'll look it up when we get back."

While she was putting the kettle on, I went into Dad's cubbyhole of a study, hunted out his ancient copy of *Gulliver's Travels,* and, after some searching, found the passage I was looking for. I carried the book through into the kitchen. "Here we are, Lou," I said. "It's where the King of Brobdingnag is talking to Gulliver." And I read out: *He gave it for his opinion that whoever could make two ears of corn, or two blades of grass grow upon a spot of ground where only one grew before; would deserve better of Mankind, and do more essential service for his country, than the whole race of politicians put together.'* "

Lou was just pouring out the tea when the phone rang. It was Mother. Would we come back to hospital straightaway? Dad had just had another attack. As luck would have it, we got snarled up in the rush-hour traffic, and by the time we arrived, it was all over.

The funeral took place five days later. As we trailed along the puddled path behind the coffin, the sun came out. A few minutes later, a brilliant rainbow had unfurled itself above the distant Roding. I remember how I chose to see it as a sort of omen — a message of hope for the future — as though Dad had somehow contrived

to send me a benign blessing from wherever he was now. The wish was both father and mother to the thought.

As soon as I could decently do so, I went back to work. Driving north through the flat, lush Cambridgeshire landscape, I found myself recalling a host of incidents from my childhood — long walks with my father through the summer fields and beside the slow, reedy East Anglian rivers; walks during which he had taught me the names of the birds and the flowers and the trees and had talked to me about his mysterious "Mother Nature." I remembered him poignantly as a man of great gentleness and compassion, and I was only slightly consoled by recalling how happy he had been when the news of my Open Scholarship had come through. That evening we had sat side by side, drinking to my future in glasses of his homemade wine and watching a documentary on the television about the ravages of the drought in Ethiopia. In my mind's eye I can still see those seemingly interminable lines of articulated skeletons wandering from nowhere to nowhere along a sort of crazy-paved highway of baked mud in a dried-up riverbed, while all around them wheeled the ominous shadows of the ever-present vultures. It was then that I noticed Dad was weeping. Now, recalling the shock I experienced, I think it was that grief of his as much as my own feelings of impotent horror at the pictures on the screen that made me decide how my own life would be spent.

After the film ended, he went out into his study, brought back his tattered old copy of *Gulliver's Travels*, and read me out the bit that I'd read to Lou. We talked for hours, ranging back and forth across the world. In our imaginations the sterile desert bloomed; the granaries of Asia, Africa, and South America overflowed; and the specter of Famine was banished forever from the face of the earth. As we were tottering off to our beds in the small hours, Dad paused on the stairs, peered down at me owlishly over the banisters, and said: "One of these days, Clive, we'll write our own postscript to *Gulliver*. We'll call it 'A Message to the King of Brobdingnag.' All it'll say is: 'Your Majesty's sacred mission is finally accomplished. Over and out.'

I giggled tipsily and saluted. "Message received and understood, Dad," I responded. "Over and out."

Almost twelve months to the day after Dad's death, I attended a three-day international conference at Cambridge that was being arranged under the aegis of UNIDO. For the afternoon of the second day the organizers had laid on an inspection trip to the A.R.C.'s plant-breeding institute. After lunch we piled into a fleet of coaches and were driven off. By chance I found myself sitting next to a young woman whose identity badge

proclaimed her to be "Dr. N. E. Sheran." I introduced myself and asked her what her specialty was. She told me she was microbiologist. "And where are you from?" I said.

"I'm from Sussex."

"With Professor Dawlish?"

She nodded.

"Hey! Are you researching nitrogen fixers?"

"We're researching lots of things."

"It's those nifs I'm really interested in," I told her. "What's the point of developing high-yield strains of cereals if none of the Third World countries can afford the fertilizers to reap the benefit?"

She smiled. "So maybe we should all be researching ways of producing cheaper fertilizers."

We spent that afternoon on a conducted tour of the trial plots and in listening to an account of the P.I.B.'s latest colchicine experiments. I was very impressed. By cutting the twelve years it takes to produce a genuinely new variety down to eight years, they seemed to have stolen half a march on the inexorable Malthusian progression, which decrees that the mouths to be fed will forever outstrip the production of the wherewithal to feed them on.

As we rode back to Cambridge, I expatiated on this theme to Dr. Sheran. "A world population headed for over 6 billion by the year 2000 means we've got to increase food production by at least 50 percent just to keep starvation down to its *present* level. What we need are shortcuts."

"Or efficient birth control," she suggested mildly.

"That's bound to come with the rise in the standard of living."

"But to achieve *that* you'll have to increase your food production by at least 100 percent. Do you really think it's possible?"

"To make two ears of corn grow where only one grew before?" I said. "Of course it's possible."

"In twenty years?"

"Improving the species is only one aspect of it," I said. "Improving your methods of agriculture — better irrigation, soil conservation, cheaper fertilizers — they're all vital. It has to be a broad-front operation. But it *can* be done. It must be."

"You know, you sound exactly like my father," she remarked with a smile.

"To me I sound just like *my* father," I told her.

That evening we both attended a film show sponsored by I.C.I., and after it we ended up in the hotel bar. By then I'd discovered that her first name was Natasha. Now, under further questioning, she told me that her mother was Russian and her father Eurasian. "An F2 hybrid!" I exclaimed rapturously. "That's really exciting. Are you married?"

She shook her head.

"But you're going to be?"

"Am I?"

"You're not telling me there isn't a bloke swanning around in the back-

ground?" I protested. "I mean — well, you're really something special, Natasha. You're far and away the most fantastic microbiologist I've ever laid eyes on. And an F_2 hybrid into the bargain!"

I wasn't lying, either. She had the sort of looks of one or two of the girls I'd occasionally seen dangling from the arms of well-heeled Tory twits in the lounge bar of "The Marquis of Grantham" — sweet peaches growing in an orchard on the other side of a barbed-wire fence. I couldn't believe my luck.

Adroitly she changed the subject to what I was doing at Biotek. I told her how I was trying to isolate improved strains of the nitrogen-fixing bacteria *Rhizobia* and induce them to cooperate with cereals. I said I believed that the answer lay in getting *Rhizobium* genes into cereals so that the plants would be persuaded to form root nodules and hence create their own soluble nitrates. I added that I also had a hunch that somewhere in the world a strain of wild grain already existed that had succeeded in solving the problem for itself. If only we could track it down and then maybe exploit the P.B.I. colchicine techniques to improve its yield, we'd have the battle more than half-won.

We talked and talked, bouncing ideas back and forth, until eventually I became aware that the lights were being turned off in the lounge. I glanced at my watch, saw to my astonishment that it was long after midnight, and realized that I'd just passed the most exciting and enjoyable three hours of my life.

I spent the final morning of that conference in Natasha's company and succeeded in convincing her that her afternoon would be more profitably passed with me in a boat on the river than in attending an illustrated lecture on reafforestation programs in the Kashmir. As soon as we were afloat, I picked up where I'd left off the night before. I cross-questioned her about her line of research at Sussex and learned that for the past year she'd been working on the insertion of nif genes into chloroplast DNA. The aim of the exercise was to persuade the host plant to fix nitrogen directly in its leaves. I found the idea appealing as an *idea*, but it seemed a terribly long shot, and I told her so.

"No longer than yours," she retorted. "No one's anywhere near to interpreting the DNA code that allows *Rhizobium* to cooperate with its hosts."

"Well, if you ever happen to find it out, promise me you'll let me know," I said. "I really could do with some help."

"Do you mean that?"

Something in the tone of her voice brought me up short. I stared at her. "Yes, I do mean it," I said. "I really do. Why do you ask?"

"I just wondered."

I suppose I must have sensed that there was something else underlying

her seemingly casual question, but I also knew that I lacked the subtlety to elicit it without appearing unbearably nosy. I tucked it away in the back of my mind, and that evening, when we were halfway through our second drink, I contrived to revert to it in a roundabout sort of a way. Thus it was that I discovered she was even then in the painful process of extricating herself from a pretty intense relationship with one of her Sussex colleagues.

"Does that mean you're looking around for a change of scene?" I suggested ingenuously.

"It might have its attractions," she agreed. "Always providing I could find something in my own specialized field. Last month I got as far as writing off for application forms for a post with Unilever, but then I changed my mind."

At that point my own mind went into accelerated overdrive. I whipped out my diary and a pen and handed them across to her. "Jot down your address and phone number," I told her. "When I get back to Grantham I'll have a word with our Big White Chief. I'm pretty sure there may be something coming up at Biotek in the very near future."

"Really?" she said, scribbling down the information. "What sort of 'something'?"

"There've been rumors floating around the department for months," I told her. "The one thing I *am* sure is that they're stepping up our genetic research funding. That's bound to mean taking on some more bodies. Why shouldn't one of them be a gorgeous Ph.D. microbiologist specializing in DNA transfer? I bet we'd pay you more than you get at Sussex."

"No takers on that," she said with a grin, and handed back my diary and my pen.

Thinking about it over these past months, I believe I've succeeded in isolating five distinct episodes in my life that have led me directly to this particular point. Maybe "episodes" isn't quite the right word, but it will have to do. The first was, of course, Dad — his inspiration, his encouragement, and above all his belief in me. Without that, I might never have got started in science at all. The second was my discovery of Natie at that UNIDO conference in Cambridge in '82. The third, unquestionably, was my meeting with Dr. Sancharez at Ayacucho.

What got Natie and me out to South America in the summer of '88 was largely a series of flukes, starting with the take-over of Biotek by Monagri in '86. When that happened Natie and I were distinctly apprehensive about what it might entail, but in the space of eighteen months we'd both been upgraded, and my *Rhizobium* project had been singled out for special encouragement — thanks largely to the promising field trials with GX3.

Being a U.S.-based multinational,

Monagri had all sorts of Third World links that were completely beyond the scope of Biotek's largely U.K./European operation. Furthermore, they believed strongly in what they liked to think of as "multinational cross-fertilization." When the GX3 reports filtered through to Los Angeles and were fed into the computer, what came out was, I presume, a recommendation that Dr. Clive Woodhouse be flown out to South America to scatter some of his intellectual pollen around sundry outposts of the far-flung Monagrian empire. Fortunately, Dr. Woodhouse was now in a position to stipulate that his colleague Dr. Sheran should accompany him, and on May 3, 1988, Natie and I found ourselves descending the gangway of a transcontinental jet at Sao Paulo on the first leg of a journey that was to take us to five countries in three and a half weeks. The supreme irony is that Ayacucho didn't even feature on our itinerary!

We were supposed to spend two days at Cajamarca in Peru, fly on to Quito in Ecuador for a further four days, and then return home by way of Bogotá. What happened was that somewhere about halfway between La Paz and Lima, the private company jet that was ferrying us around developed engine trouble and had to make an emergency landing at Ayacucho. I managed to put through a phone call to the Monagri people at Cajamarca, and explained what had happened. They said they'd get back to us as soon as possible. We checked into the aiport hotel and then wandered out to take a look at the town. When we returned to the hotel a couple of hours later, we were met by a lean, leathery-faced, gray-haired man who introduced himself in excellent American English as Dr. Jaime Sancharez and informed us regretfully that our plane would have to remain grounded for at least twenty-four hours. In the meantime, he trusted that we would do him the inestimable honor of being the guests of himself and his wife at the Botanical Institute, which was situated a mere thirty minutes' drive outside the town.

We never did discover precisely what Dr. Sancharez's link with Monagri amounted to — he referred vaguely to some departmental funding connection via the University of Lima — but he told us that over the past ten years he had sent more than fifty species of wild plants and seeds to the N.S.S. lab in Colorado, and that he spent at least four months of each year on field trips up in the mountains. His real enthusiasm was reserved for the potato, of which he contended he had personally identified no fewer than eighty-three different kinds, seven of them previously unknown varieties.

We passed that afternoon examining his collection, and then he took us on a personally conducted tour of the steeply terraced gardens of the institute, which were perched on the hillside high above the town. After that we risked heart failure by plunging

into a deep pool that was fed by a mountain stream. Later we sat on the Sancharez's terrace, sipping tall glasses of iced sangria while we watched the sun go down, and chatted about our experiences in Bolivia and Brazil. Then, over a truly excellent dinner, we told him something about our present line of research at Biotek and explained how it had led directly to our being there enjoying his hospitality. As we were on the point of retiring to bed, there came a phone call from our pilot at the airport to say that the plane had been repaired and that we were now free to continue our journey.

Early next morning Dr. Sancharez drove us back into Ayacucho. We exchanged addresses, promised to keep in touch, and half an hour later were airborne once more and on our way to Cajamarca.

When we got back to the U.K. at the beginning of June, I wrote to Dr. Sancharez and his wife thanking them for having been so kind to us, and, that done, prepared to let the whole episode slip from my mind. It was briefly recalled when the photographs we had taken on our trip were developed, and among them I found one of Natie swimming naked as a naiad in the mountain pool and another of Dr. and Señora Sancharez standing with their arms about each other, smiling at us on their terrace.

Five months later, out of the blue, I received an airmail letter from Peru. Inside I found a hastily scribbled note together with a small, sealed plastic packet containing half a dozen seeds. All the note said was: "I found these growing in a high valley off the Apurîmac. They could be worth trying — J.S.."

I examined the seeds under the microscope and discovered them to be some primitive variety of maize. They were far smaller than any I had ever seen, and I wondered what could possibly have led Dr. Sancharez to suppose they might interest me — nothing in his note gave me the slightest clue — but I handed them over to our chief horticulturist and asked her to do her best by them. Three weeks later, she told me that five out of the six had germinated.

It was some days before I got around to taking a look at them for myself, and what I saw did not cause me to change my opinion. By then I had written back to Dr. Sancharez thanking him for his sample and asking him what it was that had led him to suppose the seeds might be anything out of the ordinary. By the time I received his reply I had already discoverd the answer for myself. *All five plants had begun to develop unmistakable signs of N_2 tubercles on their roots!*

But it was when I received Dr. Sancharez's second letter that I was really rocked back on my heels. Having described in some detail the general area in which he had discovered the plants, he concluded: "The altitude

was a good five hundred meters higher than any where I have ever found wild maize before, which to me suggests an exceptionally short life cycle. The soil was *very* poor — low-grade loess. My guess is that these plants may have acquired not only a symbiotic N_2 *Rhizobium*, but also maybe a species of cooperative bacterium that acts as a phospate accumulator. Is this possible, do you think?"

Sancharez was certainly right about the length of the life cycle. The plants matured at three months. By February '89 we had collected sufficient seed to risk our first limited trials. From that second crop Natie succeeded in extracting a hitherto unknown motile flagellate bacterium that appeared to flourish in and around the N_2 nodules and seemed to possess precisely those characteristics that Sancharez had suspected. We named it *Phosphomonas sancharezii* in his honor and crossed our fingers. For the first time since December, Natie and I began to talk — though only between ourselves and very, very guardedly — of a real breakthrough.

For the next three years we worked flat-out at transferring the nif genes from the wild maize to our high-yielding strains. Our first real success came with GX14. The colchine-crossed progeny had a four-month cycle, bred true to three generations, and carried a yield of anything up to four times that of the wild stock. Meanwhile, Natie and her colleagues were forging ahead, adapting and culturing *P. sancharezii*. In two years they had succeeded in persuading it to work in harmony with both wheat and rice. When the results of those first Grantham cereal field trials came in, they showed increased yields of from 30 to 50 percent right across the board, and no adverse side effects! Natie and I were on top of the world: 1992 was our golden year, and I see it now as the fourth of my five particular episodes.

It was also the year when she and I finally regularized our relationship by getting married. We'd put off doing it before, partly from inertia and partly because of the tax situation. Now she suddenly decided that she'd like to start a family. I pointed out that if things went according to plan, we'd soon find ourselves rushing around the world supervising our tropical field trials. But she had quite made up her mind that Science could spare her to Nature for a year or two, and once I'd realized just how strongly she felt about it, I discovered that I rather fancied the idea of becoming a father. Anyway, it didn't happen straightaway.

By this time Monagri was totally convinced that in *P. sancharezii* we were onto an out-and-out all-time winner. They dropped the security shutters while they set about feverishly devising the best means of exploiting our discovery to maximum financial advantage. Yet even with that holdup, I

estimated that it would take us at least ten more years before we could expect to see any significant advance in our campaign against the ancient enemy world hunger. Fortunately, we were still free to press ahead with GX14.

The results of the first tropical field trials were frankly disappointing — yields were on average less than half those we had been obtaining in the U.K. — but even so, GX14 proved itself conclusively capable of flourishing in soils that were notably deficient in both nitrates and phosphates. I estimated that it could eventually increase the Third World's agrarian potential by anything up to 10 percent. And there was still our vastly improved strain of *P. sancharezii* to come!

In April '93 Natie finally achieved her ambition of getting herself pregnant. We set off on our annual holiday in the third week of June, driving down to a villa we'd rented on the Côte d'Azur. On our way we called in to see Mother at Chelmsford, broke the good news about the baby, and then set off to catch the night ferry from Dover. As we approached the northern end of the Dartford tunnel, we were waved down at a police checkpoint and asked to show our identity cards and work permits. I noticed that all the patrol men were carrying guns. They opened the trunk of the car and poked around among our suitcases. I asked one of them what they were looking for, but all he said was, "We'll tell you if we find it." Then they slammed the trunk shut and waved us on.

As we drove up the ramp on the far side of the tunnel, we saw more armed police, a fire engine, and the burned-out shells of two container trucks that had been dragged aside into a lay-by. On the concrete wall beside them was a crudely daubed sign of a sickle and clenched fist of the Right to Work Movement. I switched on the car radio, hoping to pick up a local newscast, but all I could find was the usual Muzak pap. The highjacking of a couple of foreign juggernauts probably didn't rate even a solitary news flash anymore.

But that incident, slight as it was, started Natie and me talking in a way we hadn't really talked to each other for years. I think it dawned on both of us at the same time how *insulated* our lives had become. All our closest friends were in the same highly specialized field as ourselves; we were earning far more money than we knew what to do with; neither of us had any strong political allegiance (we voted S.D.P.); and yet, without either of us ever actually saying it, there was no doubt that we both believed we were somehow intrinsically superior to practically everyone else in the world. After all, we *knew* what we were doing and we knew *why* we were doing it. It's easy to say we were both smug and self-righteous and perfectly happy to be so. But I don't honestly think that we were altogether to blame. Look on us, if you

like, as the refined product of our social conditioning, highly specialized cells, pampered, flattered, and richly rewarded for our successes. We could hardly have been expected to probe all the ethical subtleties of our situation when we knew that what we were engaged upon was the practical realization of one of mankind's few truly altruistic dreams.

But during that holiday we discussed it more than once. And it was always Natie who brought the subject up. Maybe it was something to do with her being pregnant. I remember us lying side by side after we'd made love one afternoon, and suddenly she came out with: "Do you sometimes think we're playing at being God?"

"What on earth are you talking about?" I said.

"I'm not sure myself," she admitted. "It's just a feeling."

"You don't *believe* in God, do you, Natie?"

She didn't answer straightaway, so I repeated my question.

"I don't know if I do or not," she said at last. "But now and again I think I'd like to. I'd like to feel safe."

"You mean you *don't* feel safe?"

"I can't explain it exactly," she said, "but just occasionally I get a sort of uncomfortable feeling that the bottom could drop right out of the world and I could fall through. And I know that if that happens, I'll just go on falling and falling forever."

I felt her give a sudden shiver. "Did you remember to take your vitamins this morning?" I asked.

"You don't know *what* I've been talking about, do you?" she said. "Go on. Admit it."

I started to protest, then caught sight of her sideways on. My imagination switched into an altogether different and more exciting gear. I don't remember her ever reverting to the subject of God.

In September I was informed in strict confidence that all the necessary arrangements had been made for three simultaneous tropical field trials of *P. sancharezii.* One was to take place in Brazil, another in Zimbabwe, and the third in Northern Queensland. Given the choice of which I'd attend in person, I opted for Queensland simply because I knew Sam Wallace and I'd never been to Australia before. Since the baby was due at the end of January, Natie elected to stay at home.

I flew into Darwin on December 3rd and within an hour was airborne again, heading east over the Arnhem Land Reserve to Nhulunbuy on the coast of the Gulf of Carpentaria. At Nhulunbuy a company helicopter was waiting to ferry me down to the experimental Queensland Station near Arrowsmith.

We reached our destination shortly before six o'clock in the evening and circled briefly over the rice paddies before setting down on the outfield of the

station's cricket ground. I was greeted by Sam Wallace, who was O.i.C. of the Queensland Station, and an Indian colleague of his whom he introduced as "Ami." Sam took me over to the bungalow that was to be my home for the next week, and then the three of us went across to the main lab, where I was shown the current field plan and the rice paddy charts.

Two small feeder streams ran down into the valley from the densely wooded hills behind. At the top of the valley an earth dam had been constructed to provide a fallback reservoir in the unlikely event of a prolonged drought. The single outlet from this artificial lake supplied the irrigation network through a main artery and an ingeniously engineered system of capilliary channels that were in turn controlled by a series of manually operated sluice gates.

Sam pointed out two plots on the chart, one at the bottom of the paddy ladder and one about halfway up. "Those are your best bets," he said. "The upper one's Balinese J. hybrid, and the lower one's a variety of Sumatra long-grain. They're both well established, and they're both good *Azospirillum* cooperators, so nitrogen starvation won't be a problem."

"Whatever you say, Sam," I said. "You're the man in charge."

"That's settled, then," he said. "C7 and D5. Now let's go and open up some beers."

Early the next morning, without any undue ceremony, I loaded up a pressure spray with a 500-to-1 dilute culture of *Phosphomonas sancharezii* and handed it over to one of Sam's assistants. Then I pulled on a pair of borrowed waders and followed Sam and Ami up the track to plot C7.

The plants were well in flower, and the N_2-fixing alga *Anabaena* was clearly visible as a green scum on the surface of the water. I nodded to Sam and gave a thumbs-up sign to the boy who was working the spray. He waded out into the center of the plot, switched on the motor of the sprayer, and began laying down a fine mist of *P. sancharezii* across the surface of the paddy. It took him about ten minutes. Then we made our way down to the lower plot and repeated the operation. There was just sufficient culture solution for a comprehensive treatment of both paddies. After it was done we strolled back down the hill in the warm sunshine for a well-earned breakfast.

Over our meal I talked to Sam and Ami about the other elements of the test program and told them what it was we were aiming for. They both looked a bit skeptical when I said I was anticipating anything up to a 50 percent increase in gross crop yield. "It sounds like black magic to me," said Sam. "Hell, we were over the moon when we got 8 percent with our first Sumatra cross. *And* we were supplementing with phospate."

"Yes, I know," I said, and held up my crossed fingers, "but if we're right

— and I think we *are* right, Sam — this one looks like the breakthrough we've all been praying for since the days of the Reverend Thomas Malthus."

After breakfast I sent off a prearranged coded message via the radiophone to our office in Brisbane, letting Monagri know that everything had gone according to plan. I followed this up with a cable to Natie telling her I'd arrived safely and that things were looking good. Then, still feeling the effects of jetlag, I strolled off up the valley to relax beside the lake at the back of the dam.

A couple of hours later, as I was making my way down again, I saw Ami running up the track toward me. The sun was pretty fierce by then, and I remember wondering what on earth he could be in such a tearing hurry about in that heat. "Come," he gasped. "Come quick, Clive! We are in bad trouble!"

"Trouble?" I said. "What sort of trouble?"

"The alga. The alga on the paddy."

"What about it?"

"It has gone crazy."

I stared at him. I just couldn't focus mentally on what he was saying. "Gone crazy?" I repeated vaguely. "What's that supposed to mean?"

"You'll soon see," he panted. "Sam thinks your culture's triggered off a reproductive explosion in the *Anabaena*. We've shut off the sluices to try and contain it."

Almost without my realizing it, I found I was sprinting back down the path. When I reached a point that allowed me a view across the paddy fields, I stopped dead in my tracks. The two plots that we'd treated with *P. sancharezii* where now completely covered over with a vivid, lettuce-green carpet of algae bloom. Half a dozen men with face masks and backpack sprays were wading to and fro through the scum, laying down a smoky mist that I guessed must be a biocide. "Christ Almighty," I whispered. "Who'd have believed it?"

I found Sam in the lab, bent over a microscope. He looked up as I entered, and beckoned me forward to see for myself. I watched with a sort of horrified fascination as the *Anabaena* cells guzzled the nutrients that the foraging *P. sancharezii* bacteria provided, then grew fat and divided and multiplied with an almost unbelievable rapidity. The microscopic predatory organisms that should have prevented this from occurring were seemingly rendered powerless by the algae's newfound capacity to monopolize the entire supply of phosphorus. I felt a chilly sweat break out all across my back. "Jesus Christ, Sam," I muttered. "Do you realize what might have happened if...?"

"Don't I just," he said grimly. "I've radioed to Nhulunbuy for fifty drums of biocide and a spray chopper. As it is, there's still no guarantee we've got it cordoned off. It was at least two hours after the treatment before we closed off

the main sluice. But I've had a five-man crew out working downstream for the past hour or so. Let's go and see how they're making out."

The sun beat down on us like a hammer as we set off along the river-side track below the compound. By now there was only a thread of water trickling in the bottom of the channel, and the mud was drying out and starting to steam. Some of the grass along the bank that had caught the biocide spray drift was already beginning to wilt. "How long can you keep the channel dry?" I asked.

"For about twelve hours, give or take a couple. After that the lake'll spill over the sluice gate. Still, maybe that's twelve hours more than we deserve. We can count ourselves lucky the monsoon's late. There hasn't been any rain to speak of up in the hills for over a week."

We discovered plenty of traces of the rogue *Anabaena*, but it was obvious that the biocide had already done its work. I found that the clenched fist in my stomach was beginning to relax. Then I suddenly remembered the other two tropical trials and let out a strangled yelp. Sam asked what was up. When I told him, he gave a sort of grunt and said: "Oh, I forgot to tell you. I already radioed Brisbane and L.A. on your behalf. You weren't around to ask, and it seemed prudent."

"Sam—" I began, and then couldn't seem to find the words I wanted.

He winked at me. "That's O.K., chum," he said. "I guess you'd have done the same for me in similar circumstances."

At about three in the afternoon, two helicopters appeared, one equipped for aerial spraying and the other loaded with extra drums of poison. Within minutes of its arrival, the sprayer was in the air again, clattering back and forth over the rice paddies and along the now dry irrigation channel below the station. By the time the sun was low over the western hills, there couldn't have been an inch of the ground that hadn't been treated at least three times over. We had seen the work of a dozen years virtually destroyed in a single afternoon.

That evening I asked Sam how long he thought it would be before he could have the station operating again. "I'm not even thinking about it," he said. "Ask me the same question in a week's time and maybe I'll have an answer. Right now all I'm concerned with is 100 percent sterilization. But I'll tell you something, Clive, when I get around to writing up my report on this little malfunction, I'll make damned sure one copy gets to Canberra and another to the United Nations."

"But what about your contract? Doesn't Monagri stipulate—"

"I don't give a whore's fuck about my contract! If we don't blow the lid right off this one, they'll only go and try it again somewhere else. Where d'you think we'd be now if I hadn't just happened to take a stroll up to the

paddies when I did?"

"I know. I know," I said. "When I saw what had happened, my heart damn near stopped. I had a sort of nightmare vision of the whole valley vanishing under a spew of green slime. I don't think I've ever been more scared in my life. You deserve a gold medal."

"Maybe I do at that," he said thoughtfully. "If I *have* done it."

"Christ!" I exclaimed. "If you haven't, what else *can* we do?"

"We can spray, and spray, and then we can spray some more," he said. "Even if it means killing off every single living green thing from here down to the gulf. What we've cooked up here is an insatiable algal-bacterial cancer. Unless we manage to cut it out completely and utterly right here and now, we might as well get down on our knees and say amen."

"But surely we *have* cut it out."

"I hope so," he said. "I really do. But I'll be a whole lot easier in my mind if by this time tomorrow we haven't found a solitary trace of rogue alga. within five miles of this place. Now I'm off to bed, and my advice to you is to do the same. We've got a pretty nail-biting twenty-four hours ahead of us."

I did as he suggested, but it was a long time before I got to sleep. I lay and stared up at the ceiling, going over and over in my mind the twists and turns of the trail that had brought me to this point. And then I found myself thinking about Natie and the baby, and for the first time since I was a small child, I found myself praying.

I was awakened by the cough and clatter of a helicopter starting up. I leaped out of bed, dragged on some clothes, and ran outside just in time to see one of the machines lift and head off down the valley toward the coast. Ami was making his way back toward the compound. I shouted to him. He waved his arm and turned in my direction. "Ah, good morning, Clive."

"Let's hope you're right," I said. "I didn't sleep too well last night."

"Nor me," he agreed.

"Was that Sam I saw going off?"

"Yes, he has gone to reconnoiter downstream. The lake started to spill over at about four this morning. That was later than we had expected."

"And how are the paddies?"

"They seem to be clear, thank God. But we shall go over them once more just to be doubly sure. Would you like some coffee?"

"Wouldn't I just," I said.

We sat on the veranda of the cookhouse, sipping scalding black coffee and talking over the events of the previous day. Long, slim fingers of silvery light thrust themselves abruptly through a band of clouds low down on the eastern horizon, showing where the sun was about to rise. "I expect you are very disappointed by what has happened," he said. "All those years of hard work gone up the spout."

"D'you know, I hadn't even begun

to think of that side of it," I said. "But I daresay it'll hit me soon enough. At this moment every hope I have is riding on Sam and those drums of biotoxin."

"Yes, indeed," he murmured. "Has it not struck you as strange, Clive, that you experienced no such side effects in your trials at home?"

"That's what tropical trials are all about," I said. "And I don't mind telling you I still wouldn't believe it if I hadn't seen it with my own eyes. It really was such a beautiful piece of applied biotechnology, Ami — a truly sweet equation. It should have been worth a couple of dozen Nobel prizes any day. Jesus, I'll bet our overlords are feeling pretty sick right now."

"You are forgetting that Monagri is into phosphates, too," he observed with a wry smile.

After we'd drunk our coffee we went up to take another look at the paddies. They were truly a dismal sight. The water had all been diverted into the main channel, and the drying plots lay shrouded under a sort of graveyard quilting of yellowy gray cobweb. The effect was curiously *alien* — sinister. I surveyed it for a few minutes, then walked the hundred or so yards across to the arterial channel and peered down into the stream. Almost at once I saw a splodge of blue-green algal bloom about the size of a dinner plate sailing down the center of the channel. Another followed it, and then a third. I shouted to Ami. He hurried over, saw what had alarmed me, and smile reassuringly. "Oh, that is perfectly innocent, Clive. It is coming down from the reservoir. When we shut off the main sluice, the water level rose. Now it is spilling over. That is just surface alga. It has been coming down like that since early this morning."

I gazed down at a fresh lump that was trundling cheerfully along. "Have you been up there to check?" I asked.

"No," he admitted. "But what is the point? The alga could never move upstream against the current. So how could the lake be infected?"

"I don't know," I said. "Maybe I've just got a heavy attack of the jitters. But I'm going up to take a look. Just for my own peace of mind, you understand. Will you come with me?"

He shook his head. "I have promised Sam I will organize the respraying of the paddies. I will see you at breakfast."

I set off up the track beside the stream. In one place a thick clot of algal bloom had piled up against some invisible obstruction. When I saw that it was pieces of this mass that the current was prizing loose and launching down the channel, I breathed more easily. Ami was right. Our problem, if it still existed, lay down at the far end of the valley where Sam was investigating. But having come this far I did not turn back.

The tallest of the trees that covered the hills were already catching the

early sunlight as I started to plod my way up the face slope of the dam. A single invisible bird was making a strange, sad, two-noted call — *lo-ee, lo-ee, lo-ee* — on and on in the depths of the forest, but that apart, there was only the noise of the stream to break the silence.

And then I saw the lake!

The sensation I experienced at that moment was purely physical. I felt exactly as if my stomach had been ripped open and all my intestines were spilling out around my ankles. I remember that I lifted my hands and began pushing childishly at the air in front of my face as though by so doing I could make the vision go away, not *be*. Above all, I wanted to wake myself up out of my nightmare.

Where, the day before, there had been a few small islands of water hyacinth floating serenely on a cloud-dappled, sky-blue mirror, now, except for one small patch of clear water close to the mouth of the sluice, the surface was completely covered in a dense, mantling bloom of *Anabaena*. All across its seething skin little bubbles of gas were constantly forming and breaking. They seemed to wink at me like a billion tiny, bright, incurious eyes.

I stood as though I had been nailed to the ground, staring out across that evil broth with a feeling of such horror in my heart that I can't even begin to express it. And then I threw back my head and gave a sort of wild-animal howl of terror and anguish. Startled, a pair of ducks rose clattering from the slime, circled once above the nearby trees, and then flew off toward the south.

As I watched them grow small and vanish in the distance, I suddenly realized what must have happened, what was gong to happen again, and what would surely go on happening unless some miracle could be found to prevent it. Just one small shred of rogue alga clinging to the foot of one of those birds would have been enough. Doubling itself every fifteen minutes in the warm waters of the lake, knowing nothing but its own insatiable appetite to feed and to grow, in twenty-four hours or maybe even less it would have engulfed the whole surface.

Then I saw that in places it had already begun to expand outward across the margin of reed and grass that separated the lake from the nearby trees. The sight unlocked my rigor. I turned my back on the sickening scene and fled away down the path toward the distant station. And all the way down my mind was filled with an appalling vision of those two birds planing down through the calm air somewhere far away, and rinsing off their trailing ribbons of slime into some quiet marsh or stream whose waters were just beginning to feel the first mothering warmth of the morning sun.

* * *

The events of the next twenty-four are still a sort of hazy chaos in my memory. I remember the expression of Ami's face as I blurted out what I had discovered, I remember helping to load up a truck with half a dozen drums of biocide and ordering two of the men to drive up to the top of the lake and pour the stuff straight into the feeder streams, then to start hand-spraying wherever they found signs of the alga spreading under the trees. I remember a white-faced Sam returning an hour later with the grim news that they'd found unmistakable evidence of *Anabaena* on a quite different stream over three miles away. And I remember most vividly how he swore and banged his fists against his forehead when I told him what I suspected about the birds.

He gave immediate orders for the helicopter's tanks to be refilled and told the pilot to douse any patch of open water he could find between us and the gulf, because "if ever it finds its way down to the sea, we haven't got a hope in hell of holding it!" Then he took me with him into the radio room, and we spent the next four hours pleading desperately for help from the government, from the army, from Monagri, from *anyone* we thought we might persuade to take us seriously.

That evening Sam summoned a council of war in the main lab. By then four more helicopters had flown in, together with a fuel-supply tanker and just about enough biocide to transform the whole valley into a sterile desert. A map of the surrounding district was projected onto a screen. Sam divided it up into half a dozen operation areas and detailed off the pilots. These men, all of whom worked for state agricultural combines, couldn't seem to grasp just how desperate the situation was. One of them asked Sam what he was so scared of. "Hell, we're talking about that stuff that grows on the top of duck ponds, aren't we?"

Sam agreed that we were, more or less.

"And that's *dangerous?*"

Sam nodded. "I could be wrong," he said. "I hope to God I *am* wrong. But what I think we've got here is something that could make all the atom bombs in the world look about as dangerous as a cold in the head. Unless we wipe this stuff out absolutely, totally and completely, here and now, within the next couple of days, then in a month's time I'll lay you odds there won't anything left that you'd recognize as Queensland — no forests, no rivers, no fields, no sea, no animals, nothing. Just a blanket of blue-green scum over everything. And after us it'll be the turn of the rest of the world."

"Jesus," breathed his questioner, visibly shaken. "How the hell did this thing start?"

Sam glanced across at me. "I guess you'd have to say it's a direct result of doing the wrong deed for the right reasons," he said. "The point is, are we going to be able to stop it?"

All next day from sunup to sundown, the helicopters droned up and down and back and forth across the valley, laying down a dense mist of biocide. No longer was it a question of selecting targets. This was an obliteration attack designed to wipe out every last trace of *Anabaena* across an area of some four miles by five of hinterland. While it was in progress, Sam contacted Canberra, reported on what was happening, and demanded to speak directly with the prime minister. Somehow he managed it, though I never discovered exactly how. Nor do I know for certain what he said — Sam's own account of their conversation was not particularly coherent — but I do know that he did his utmost to persuade Prime Minister Brownlee that, should all else fail, he must order an immediate and total evacuation of the whole Arnhem peninsula and then drop a thermonuclear bomb on it. The plea was turned down flat. At the time I thought Sam was just trying to give the ultimate emphasis to his point. Which simply goes to show that even I still could not bring myself to face up to the true nature of the situation.

I don't think I slept at all that night. At first light I joined Sam and Ami in the radio room and listened to the helicopter pilots calling in their dawn reports. As they patrolled farther and farther out and the ring of red crosses finally petered out on Sam's map, Ami and I looked at one another with an unspoken question in our eyes. Neither of us cared to tempt fate by saying that it looked as if the operation had succeeded. Sam further extended the perimeter of the search by three miles, and still there was nothing. When the final report came in "all clear," Ami said: "Someone is going to have to say it. We've won, haven't we, Sam?"

Sam gazed down abstractedly at the map on the table and began hatching in a grid of scarlet lines across the blue triangle that represented the lake. "Maybe we have," he said. "But with cancer it's always the secondaries you can never be quite sure of. If Clive hadn't spotted those bloody ducks yesterday, I think I'd have to agree with you. As it is...." And he left the sentence unfinished.

The helicopters, their mission completed, returned to the station. Over breakfast the pilots confirmed their reports. *Anabaena* — and just about everything else, too — had been wiped out. Sam told them they had done a first-rate job, and then followed this up with the news that they were going to have to go out and spray it all over again. They took it better than I had expected, but then I didn't know what they were being paid.

In the afternoon I flew with Sam down to the coast. We found the shore littered with dead fish and seabirds, innocent victims of the tons of poison we'd poured into the water. But there was no sign of live *Anabaena* anywhere. We flew south as far as Bickerton, then swung inland. It was all

clear. "Go on, you've got to admit it now, Sam," I said. "You've won."

He turned toward me and was, I know, on the point of agreeing with me, when the radio crackled. "Sam? Sam? Ami here."

"Go ahead, Ami."

"We've just had a report in from Nuhlunbuy, Sam. They say there's *Anabaena* in Arnhem Bay!"

"*Arnhem Bay!* Sweet Mother of Christ! Are they *sure?*"

"The pilot of the mail plane from Darwin reported it. He went down and took a close look. He says its covering both rivers and spreading along about five miles of the south shore."

If ever I've seen death in a man's face, I saw it in Sam's at that moment. He closed his eyes for a few seconds, then drew in a deep breath and said: "We'll be with you inside fifteen minutes, Ami. Get Mike to put out that total-panic call to Darwin. And get hold of Bill Rawlings. Hold him till I get there. See you, boy."

"Where's Arnhem Bay, Sam?" I said.

"Over on the far side of the peninsula. All of forty bloody miles from here!"

We looked at one another, and then, lost for words, we looked away.

All that happened four months ago. Perhaps if we had been *believed*, then it might still have been prevented. But by the time the Australian government was at last convinced that we had not all gone stark raving mad, it was much too late. Carried by the southern equatorial current, the alga was already well on its way to the Indian Ocean. When I flew back to England three days before Christmas, I could see the green stain spread right out across the Timor Sea. The bitterest irony of all is that when Sam and I flew down to Canberra and made our last desperate and ineffectual appeal for a hydrogen bomb to be dropped on Arnhem Land, there were no fewer than four nuclear subs on exercise in the Coral Sea, each one capable of sterilizing the whole of Queensland twenty times over. As Sam said to me that night while we were doing our best to drink ourselves into oblivion in the airport bar: "There's one gulf in the human imagination that's deeper than the Mariana Trench. Although men are prepared to insult Nature, to abuse her, even to rape her, they just can't *conceive* the possibility that she isn't immortal. But why in God's name should you and I have been the ones chosen to prove them wrong?"

I don't know if he was expecting me to supply an answer. I don't even know if there *is* an answer. All I know for sure is what I've written down here.

Since then, every one of his predictions has come true. For the past six weeks the atmospheric sulfur count has been climbing steadily, and the last satellite scan I saw a week ago showed infestation well out into the Pacific and

as far south as Madagascar. We have passed a sentence of death on the biosphere, and there is no court of appeal. It is only a question of time — or God. Fifty years from now, all trace of *Anabaena* and *Phosphomonas sancharezii* will have vanished as though they had never been: in destroying the world, it will destroy itself, too. Ultimately, inevitably, the plant Earth will become indistinguishable from any other sterile satellite trailing its lifeless way through the empty corridors of space until the end of time.

As for *"that most Pernicious Race of little odious Vermin that Nature ever Suffered to crawl upon the face of the Earth"* — which was how the King of Brobdingnag finally summed us up — my own rough estimate is that we have about a year left. So it will be somewhere around Cissie's first and last birthday that I'll be in a position to send Dad's message back: "Your Majesty's sacred mission is finally accomplished. Over and out."

Mermaids have enticed explorers of the sea for eons in stories and legends. "Till Human Voices Wake Us" shows us how science can make legends live. Here is a taut, polished story of a man, a modern mermaid and a quest with unexpected results.

Till Human Voices Wake Us

BY
LEWIS SHINER

They were at forty feet, in darkness. Inside the narrow circle of his dive light, Campbell could see coral polyps feeding, their ragged edges transformed into predatory flowers.

If anything could have saved us, he thought, this week should have been it.

Beth's lantern wobbled as she flailed herself away from the white-petaled spines of a sea urchin. She wore nothing but a white T-shirt over her bikini, despite Campbell's warnings, and he could see gooseflesh on her thighs. Which is as much of her body, he thought, as I've seen in ... how long? Five weeks? Six? He couldn't remember the last time they'd made love.

As he moved his light away he thought he saw a shape in the darkness. He thought: shark, and felt a quick constriction of fear in his throat. He swung the light back again and saw her.

She was frozen by the glare, like any wild animal. Her long, straight hair floated up from her shoulders and blended into the darkness; the ends of her bare breasts were eliptical and purple in the night water.

Her legs merged into a green, scaly tail.

Campbell listened to his breath rasp into the regulator. He could see the width of her cheekbones, the paleness of her eyes, the frightened tremor of the gills around her neck.

Then reflex took over and he brought up his Nikonos and fired. The flare of the strobe shocked her to life. She shuddered, flicked her crescent tail toward him, and disappeared.

A sudden, inexplicable longing overwhelmed him. He dropped the camera and swam after her, legs pumping, pulling with both arms. As he reached the edge of a hundred foot

drop-off, he swept the light in an arc that picked up a final glimpse of her, heading down and to the west. Then she was gone.

He found Beth on the surface, shivering and enraged. "What the hell was the idea of leaving me alone like that? I was scared to death. You heard what that guy said about sharks...."

"I saw something," Campbell said.

"Fan-fucking-tastic." She rode low in the water, and Campbell watched her catch a wave in her open mouth. She spat it out and said, "Were you taking a look, or just running away?"

"Blow up your vest," Campbell said, feeling numb, desolate, "before you drown yourself." He turned his back to her and swam for the boat.

Showered, sitting outside his cabin in the moonlight, Campbell began to doubt himself.

Beth was already cocooned in a flannel nightgown near her edge of the bed. She would lie there, Campbell knew, sometimes not even bothering to close her eyes, until he was asleep.

His recurring, obsessive daydreams were what had brought him here to the island. How could he be sure he hadn't hallucinated that creature out on the reef?

He'd told Beth that they'd been lucky to be picked for the vacation, that he'd applied for it months before. In fact, his fantasies had so utterly destroyed his concentration at work that the company had ordered him to come to the island or submit to a complete course of psych testing.

He'd been more frightened than he was willing to admit. The fantasies had progressed from the mild violence of smashing his CRT screen to a bizarre, sinister image of himself floating outside his shattered office windows, not falling the forty stories to the street, just drifting there in the whitish smog.

High above him Campbell could see the company bar, glittering like a chrome-and-steel monster just hatched from its larval stage.

He shook his head. Obviously he needed some sleep. Just one good night's rest, he told himself, and things would start getting back to normal.

In the morning Campbell went out on the dive boat while Beth slept in. He was distracted, clumsy, and bothered by shadows in his peripheral vision.

The dive master wandered over while they were changing tanks and asked him, "You nervous about something?"

"No," Campbell said. "I'm fine."

"There's no sharks on this part of the reef, you know."

"It's not that," Campbell said. "There's no problem. Really."

He read the look in the dive master's eyes: another case of shell shock. The company must turn them out by the dozens, Campbell thought. The stressed-out executives and the boardroom victims, all with the same

glazed expressions.

That afternoon they dove a small wreck at the east end of the island. Beth paired off with another woman, so Campbell stayed with his partner from the morning, a balding pilot from the Cincinnati office.

The wreck was no more than a husk, an empty shell, and Campbell floated to one side as the others crawled over the rotting wood. His sense of purpose had disappeared, left him wanting only the weightlessness and lack of color of the deep water.

After dinner he followed Beth out onto the patio. He'd lost track of how long he'd been watching the clouds over the dark water, when she said, "I don't like this place."

Campbell shifted his eyes back to her. She was sleek and pristine in the white linen jacket, the sleeves pushed up to her elbows, her still-damp hair twisted into a chignon and spiked with an orchid. She had been sulking into her brandy since they'd finished dinner, and once again she'd astonished him with her ability to exist in a completely separate mental universe from his own. "Why not?"

"It's fake. Unreal. This whole island." She swirled the brandy but didn't drink any of it. "What business does an American company have owning an entire island? What happened to the people that used to live here?"

"In the first place," Campbell said, "it's a multinational company, not just American. And the people are still living here, only now they've got jobs instead of starving to death." As usual, Beth had him on the defensive, but he wasn't as thrilled with the Americanization of the island as he wanted to be. He'd imagined natives with guitars and congas, not portable stereos that blasted electronic reggae and neo-funk. The hut where he and Beth slept was some kind of geodesic dome, air-conditioned and comfortable, but he missed the sound of the ocean.

"I just don't like it," Beth said. "I don't like top secret projects that they have to keep locked up behind electric fences. I don't like the company flying people out here for vacations the way they'd throw a bone to a dog."

Or a straw to a drowning man, Campbell thought. He was as curious as anybody about the installation at the west end of the island, but of course that wasn't the point. He and Beth were walking through the steps of a dance that Campbell now saw would inevitably end in divorce. Their friends had all been divorced at least once, and an eighteen-year marriage probably seemed as anachronistic to them as a 1957 Chevy.

"Why don't you just admit it?" Campbell said. "The only thing you really don't like about the island is the fact that you're stuck here with me."

She stood up, and Campbell felt, with numbing jealousy, the stares of men all around them focus on her. "I'll see you later," she said, and heads

turned to follow the clatter of her sandals.

Campbell ordered another *Salva Vida*, watching her walk downhill. The stairs were lit with Japanese lanterns and surrounded by wild purple and orange flowers. By the time she reached the sandbar and the line of cabins, she was no more than a shadow, and Campbell had finished most of the beer.

Now that she was gone, he felt drained and a little dizzy. He looked at his hands, still puckered from the long hours in the water, at the cuts and bruises of three days of physical activity. Soft hands, the hands of a company man, a desk man. Hands that would push a pencil or type on a CRT for another twenty years, then retire to the remote control of a big-screen TV.

The thick, caramel-tasting beer was starting to catch up to him. He shook his head and got up to find the bathroom.

His reflection shimmered and melted in the warped mirror over the bathroom sink. He realized he was stalling, staying away from the chill, sterile air of the cabin as long as he could.

And then there were the dreams. They'd gotten worse since he'd come to the island, more vivid and disturbing every night. He couldn't remember details, only slow, erotic sensations along his skin, a sense of floating in thick, crystalline water, of rolling in frictionless sheets. He'd awaken from them gasping for air like a drowning fish, his penis swollen and throbbing.

He brought another beer back to his table, not really wanting it, just needing it to hold in his hands. His attention kept wandering to a table on a lower level, where a rather plain young woman sat talking with two men in glasses and dress shirts. He couldn't understand what was so familiar about her until she tilted her head in a puzzled gesture and he recognized her. The broad cheekbones, the pale eyes.

He could hear the sound of his own heart. Was it just some kind of prank, then? A woman in a costume? But what about the gill lines he'd seen on her neck? How, in God's name, had she moved so quickly?

She stood up, made apologetic gestures to her friends. Campbell's table was near the stairs, and he saw she would have to pass him on her way out. Before he could stop to think about it, he stood up, blocking her exit, and said, "Excuse me?"

"Yes?" She was not that physically attractive, he thought, but he was drawn to her anyway, in spite of the heaviness of her waist, her solid, shortish legs. Her face was older, tireder than the one he'd seen out on the reef. But similar, too close for coincidence. "I wanted to ... could I buy you a drink?" Maybe, he thought, I'm just losing my mind.

She smiled, and her eyes crinkled warmly. "I'm sorry. It's really very late, and I have to be at work in the morning."

"Please," Campbell said. "Just for a minute or two." He could see her suspicion, and behind that a faint glow of flattered ego. She wasn't used to being approached by men, he realized, "I just want to talk with you."

"You're not a reporter, are you?"

"No, nothing like that." He searched for something reassuring. "I'm with the company. The Houston office."

The magic words, Campbell thought. She sat down in Beth's chair and said, "I don't know if I should have any more. I'm about half-looped as it is."

Campbell nodded, said, "You work here, then."

"That's right."

"Secretary?"

"Biologist," she said, a little sharply. "I'm Dr. Kimberly." When he didn't react to the name, she softened it by adding, "Joan Kimberly."

"I'm sorry," Campbell said. "I always thought biologists were supposed to be homely." The flirtation came easily. She had the same beauty as the creature on the reef, a sort of fierce shyness and alien sensuality, but in the woman they were more deeply buried.

My God, Campbell thought, I'm actually doing this, actually trying to seduce this woman. He glanced at the swelling of her breasts, knowing what they would look like without the blue oxford shirt she wore, and the knowledge became a warmth in his groin.

"Maybe I'd better have that drink," she said. Campbell signaled the waiter.

"I can't imagine what it would be like to live here," he said. "To see this every day."

"You get used to it," she said. "I mean, it's still unbearably beautiful sometimes, but you still have your work, and your life goes on. You know?"

"Yes," Campbell said. "I know exactly what you mean."

She let Campbell walk her home. Her loneliness and vulnerability were like a heavy perfume, so strong that it repelled him at the same time that it pulled him irresistibly toward her.

She stopped at the doorway of her cabin, another geodesic, but this one set high on the hill, buried in a grove of palms and bougainvillaea. The sexual tension was so strong that Campbell could feel his shirtfront trembling.

"Thank you," she said, her voice rough. "You're very easy to talk to."

He could have turned away then, but he couldn't seem to unravel himself. He put his arms around her, and her mouth bumped against his, awkwardly. Then her lips began to move and her tongue flicked out eagerly. She fumbled the door open without moving away from him, and they nearly fell into the house.

He pushed himself up on extended arms and watched her moving beneath him. The moonlight through the trees was green and watery, falling in slow

waves across the bed. Her breasts swayed heavily as she arched and twisted her back, the breath bubbling in her throat. Her eyes were clenched tight, and her legs wrapped around his and held them, like a long, forked tail.

Before dawn he slid out from under her limp right arm and got into his clothes. She was still asleep as he let himself out.

He'd meant to go back to his cabin, but instead he found himself climbing to the top of the island's rocky spine to wait for the sun to come up.

He hadn't even showered. Kimberly's perfume and musk clung to his hands and crotch like sexual stigmata. It was Campbell's first infidelity in eighteen years of marriage, a final, irreversible act.

He knew most of the jargon. Midlife crisis and all of that. He'd probably seen Kimberly there at the bar some other night and not consciously remembered her, projected her face onto a fantasy with obvious Freudian water/rebirth connotations.

In the dim, fractionated light of the sunrise, the lagoon was gray, the line of the barrier reef a darker smudge broken by whitecaps that curved like scales on the skin of the ocean. Dry palm fronds rustled in the breeze, and the island birds began to chirp and stutter themselves awake. A shadow broke from one of the huts on the beach below and climbed toward the road, weighted down with a large suitcase and a flight bag. Above her, in the asphalt lot at the top of the stairs, a taxi coasted silently to a stop and doused its lights.

If he had run, he could have reached her, and maybe he could even have stopped her, but the hazy impulse never became strong enough to reach his legs. Instead, he sat until the sun was hot on his neck and his eyes were dazzled into blindness by the white sand and water.

On the north side of the island, facing the mainland, the village of Espejo sprawled in the mud for the use of the resort and the company. A dirt track ran down the middle of it, oily water standing in the ruts. The cinder block houses on concrete piers and the Fords rusting in the yards reminded Campbell of an American suburb in the fifties, warped by nightmare.

The locals who worked in the company's kitchens and swept the company's floors lived here, and their kids scuffled in alleys that smelled of rotting fish or lay in the shade and threw rocks at three-legged dogs. An old woman sold Saint Francis flour sack shirts from ropes tied between pilings of her house. Under an awning of corrugated green plastic, bananas lay in heaps and flies swarmed over haunches of beef. and next door was a *farmacia* with a faded yellow Kodak sign that promised "One Day Service."

Campbell blinked and found his way to the back, where a ten- or

eleven-year-old boy was reading *La Novela Policiaca.* The boy set the comic on the counter and said, "Yes, sir?"

"How soon can you develop these?" Campbell asked, shoving the film cartridge toward him.

"*¿Mande?*"

Campbell gripped the edge of the counter. "Ready today?" he asked slowly.

"Tomorrow. This time."

Campbell took a twenty out of his wallet and held it face down on the scarred wood. "This afternoon?"

"*Momentito.*" The boy tapped something out on a computer terminal at his right hand. The dry clatter of the keys filled Campbell with distaste. "Tonight, O.K.?" the boy said. "*A las seis.*" He touched the dial of his watch and said, "Six."

"All right," Campbell said. For another five dollars he bought a pint of Canadian Club, and then he went back onto the street. He felt like a sheet of weakly colored glass, as if the sun shone clear through him. He was a fool, of course, to be taking this kind of chance with the film, but he needed that picture.

He had to know.

He anchored the boat as close as possible to where it had been the night before. He had two fresh tanks and about half the bottle of whiskey left.

Diving drunk and alone was against every rule anyone had ever tried to teach him, but the idea of a simple, clean death by drowning seemed ludicrous to Campbell, not even worth consideration.

His diving jeans and sweatshirt, still damp and salty from the night before, were suffocating him. He got into his tank as quickly as he could and rolled over the side.

The cool water revived him, washed him clean. He purged the air from his vest and dropped straight to the bottom. Dulled by whiskey and lack of sleep, he floundered for a moment in the sand before he could get his buoyancy neutralized.

At the edge of the drop-off he hesitated, then swam to his right, following the edge of the cliff. From his physical condition, he was burning air faster than he wanted to; going deeper would only make it worse.

The bright red of a Coke can winked at him from a coral head. He crushed it and stuck it in his belt, suddenly furious with the company and its casual rape of the island, with himself for letting them manipulating him, with Beth for leaving him, with the entire world and human race. He kicked hard, driving himself through swarms of jack and blue tang, hardly noticing the twisted, brilliantly colored landscape that moved beneath him.

Some of the drunkenness burned off in the first burst of energy, and he gradually slowed, wondering what he possibly could hope to accomplish. It was useless, he thought. He was chasing a phantom. But he didn't turn back.

He was still swimming when he hit the net.

It was nearly invisible, a web of monfilament in one-foot squares, strong enough to hold a shark or a school of porpoises. He tested it with the serrated edge of his diver's knife, with no luck.

He was close to the west end of the island, where the company kept their research facility. The net followed the line of the reef as far down as he could see, and extended out into the open water.

She was real, he thought. They built this to keep her in. But how did she get past it?

When he'd last seen her she'd been heading down. Campbell checked his seaview gauge, saw that he had less than five hundred pounds of air left. Enough to take him down to a hundred feet or so and right back up. The sensible thing to do was to return to the boat and bring a fresh tank back with him.

He went down anyway.

He could see the fine wires glinting as he swam past them. They seemed bonded to the coral itself, by some process he could not even imagine. He kept his eyes moving between the depth gauge and the edge of the net. Much deeper than a hundred feet and he would have to worry about decompression as well as an empty tank.

At 110 feet he tripped his reserve lever. Three hundred pounds and counting. All the reds had disappeared from the coral, leaving only blues and purples. The water was noticeably darker, colder, and each breath seemed to roar into his lungs like a geiser. Ten more feet, he told himself, and at 125 he saw the rip in the net.

He snagged his backpack on the monofilament and had to back off and try again, fighting panic. He could already feel the constriction in his lungs again, as if he were trying to breathe with a sheet of plastic over his mouth. He'd seen tanks that had been sucked so dry that the sides caved in. They found them on divers trapped in rockslides and tangled in fishing line.

His tank slipped free and he was through, following his bubbles upward. The tiny knot of air in his lungs expanded as the pressure around him let up, but not enough to kill his need to breathe. He pulled the last of the air out of the tank and forced himself to keep exhaling, forcing the nitrogen out of his tissues.

At fifty feet he slowed and angled toward a wall of coral, turned the corner, and swam into a sheltered lagoon.

For a few endless seconds he forgot that he had no air.

The entire floor of the lagoon was laid out in squares of greenery — kelp, mosses, and something that looked like giant cabbage. A school of red snappers circled past him, herded by a metal box with a blinking light on the end of one long antenna. Submarines with spindly mechanical arms worked the ocean floor, thinning the vegeta-

tion and darkening the water with chemicals. Two or three dolphins were swimming side by side with human divers, and they seemed to be talking to each other.

His lungs straining, Campbell turned his back on them and kicked for the surface, trying to stay as close to the rocks as he could. He wanted to stop for a minute at ten feet, to give at least a nod to decompression, but it wasn't possible. His air was gone.

He broke the surface less than hundred feet from a concrete dock. Behind him was a row of marker buoys that traced the line of the net all the way out to sea and around the far side of the lagoon.

The dock lay deserted and steaming in the sun. Without a fresh tank, Campbell had no chance of getting out the way he's come in; if he tried to swim out on the surface, he'd be as conspicuous as a drowning man. He had to find another tank or another way out.

Hiding his gear under a sheet of plastic, he crossed the hot concrete slab to the building behind it, a wide, low warehouse full of wooden crates. A rack of diving gear was built into the left-hand wall, and Campbell was just starting for it when he heard a voice behind him.

"Hey you! Hold it!"

Campbell ducked behind a wall of crates, saw a tiled hallway opening into the back of the building, and ran for it. He didn't get more than three or four steps before a uniformed guard stepped out and pointed a .38 at his chest.

"You can leave him with me."

"Are you sure, Dr. Kimberly?"

"I'll be all right," she said. "I'll call you if there's any trouble."

Campbell collapsed in a plastic chair across from her desk. The office was strictly functional, waterproof, and mildew-resistant. A long window behind Kimberly's head showed the lagoon and the row of marker buoys.

"How much did you see?" she asked.

"I don't know. I saw what looked like farms. Some machinery."

She slid a photograph across the desk to him. It showed a creature with a woman's breasts and the tail of a fish. The face was close enough to Kimberly's to be her sister.

Or her clone's.

Campbell suddenly realized the amount of trouble he was in.

"The boy at the *farmacia* works for us," Kimberly said.

Campbell nodded. Of course he did. Where else would he get a computer? "You can have the picture," Campbell said, blinking the sweat out of his eyes. "And the negative."

"Let's be realistic," she said, tapping the keys of her CRT and studying the screen. "Even if we let you keep your job, I don't see how we could hold your marriage together. And then

you have two kids to put through college...." She shook her head. "Your brain is full of hot information. There are too many people who would pay to have it, and there're just too many ways you can be manipulated. You're not much of a risk, *Mister* Campbell." She radiated hurt and betrayal, and he wanted to slink away from her in shame.

She got up and looked out the window. "We're building the future here," she said. "A future we couldn't even imagine fifteen years ago. And that's just too valuable to let one person screw up. Plentiful food, cheap energy, access to a computer net for the price of TV set, a whole new form of government—"

"I've seen your future," Campbell said. "Your boats have killed the reef for over a mile around the hotel. Your Coke cans are lying all over the coral beds. Your marriages don't last and your kids are on drugs and your TV is garbage. I'll pass."

"Did you see that boy in the drugstore? He's learning calculus on that computer, and his parents can't even read and write. We're testing a vaccine on human subjects that will probably cure leukemia. We've got laser surgery and transplant techniques that are revolutionary. Literally."

"Is that where *she* came from?" Campbell asked, pointing to the photograph.

Kimberly's voice dropped. "It's synergistic, don't you see? To do the transplants we had to be able to clone cells from the donor. To clone cells we had to have laser manipulation of the genes...."

"They cloned your cells? Just for practice?"

She nodded slowly. "Something happened. She grew, but she stopped developing, kept her embroyonic form from the waist down. There was nothing we could do except ... make the best of it."

Campbell took a longer look at the picture. No, not the romantic myth he had first imagined. The tail was waxy-looking in the harsh light of the strobe, the fins more clearly undeveloped legs. He stared at the photo in queasy fascination. "You could have let her die."

"No. She was mine. I don't have much, and I wouldn't give her up." Kimberly's fists clenched at her sides. "She's not happy, she knows who I am. In her own way I suppose she cares for me." She paused, looking at the floor. "I'm a lonely woman, Campbell. But of course you know that."

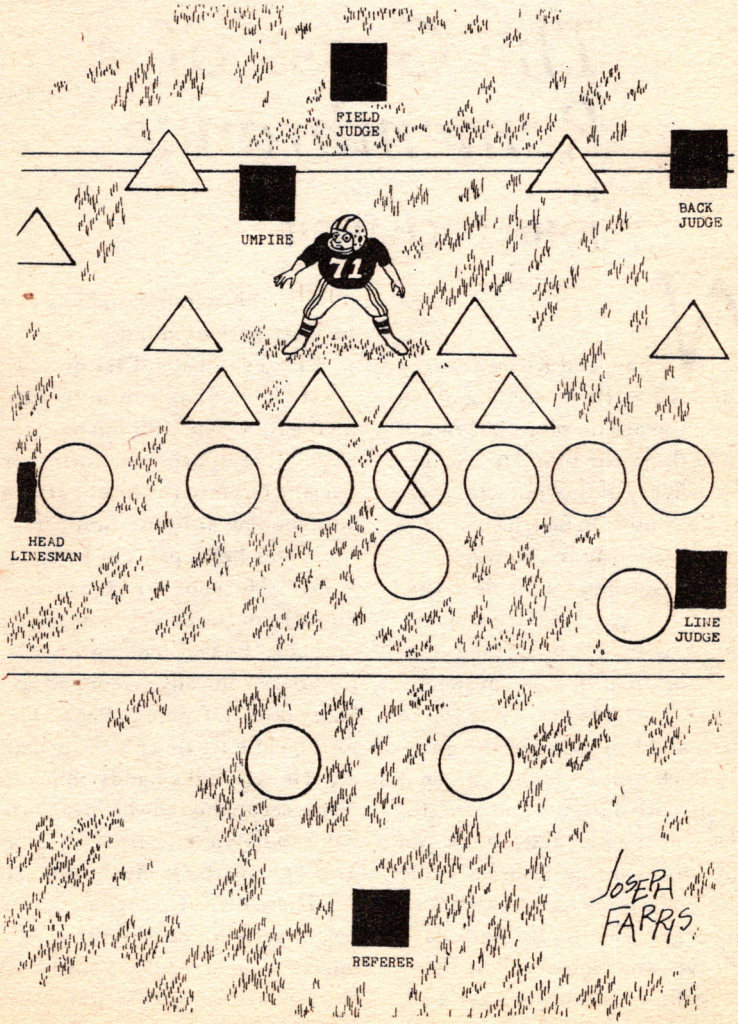
Campbell's throat was dry. "What about me?" he rasped, and managed to swallow. "Am I going to die?"

"No," she said. "Not you, either...."

Campbell swam for the fence. His memories were cloudy and he had trouble focusing his thoughts, but he could visualize the gap in the net and the open ocean beyond it. He kicked easily down to 120 feet, the water cool

and comforting on his naked skin. Then he was through, drifting gently away from the noise and stink of the island, toward some primal vision of peace and timelessness.

His gills rippled smoothly as he swam.



This superior story is John DeChancie's first for F&SF and his first short story sale. The author tells us that he has been a TV and motion picture cameraman and later a director of educational and industrial films. He began writing fiction in 1979 and has a novel, STARRIGGER, forthcoming from Ace Books. He is married and lives in Pittsburgh, where he is at work on a new fantasy novel.

The Grass of Remembrance

BY
JOHN DeCHANCIE

When Ted Kirby saw the olive drab UPS truck creeping down the street toward his place, he knew it had something for him. He was expecting delivery of the "miracle" grass seed any day now. In fact, he had been waiting impatiently for months.

He was kneeling by the dead azaleas near the concrete front walk, struggling with the intractable taproot of what had been a sprawling, ugly weed. He had cut off the top of the plant and had exposed the enormously thick root enough to grasp it tenuously with a thumb and two fingers. He was tugging at it, gently and steadily, not wanting to break it off near the surface and have the demonic thing regenerate its leathery dark green leaves and bilious yellow flowers yet again. This time he'd get it all. The ground was sodden after a week of rain, the soil nice and loose and if he were patient enough....

"That's it, baby. Easy does it."

He looked up, continuing to pull on the root. The UPS van had stopped about five houses down, the driver peering out into the bright afternoon sun, looking at house numbers.

"Over here, pal. I'm the one you want." He spoke not nearly loud enough for the driver to hear. "Come on, baby," he said, looking down again, his voice ironically sweet and cooing. "Easy does it. Come to Papa." He was losing patience quickly, as he usually did. He wiped his hands on his faded jeans, scrunched the brim of his baseball cap down, and tried for a better grip. "Come to Daddy, honey. That's it." Then, his voice turning bitter, he began yanking on the thing. "Come on, come on ... no-good, lousy, stinking, rotten, filthy prick weed BASTARD!"

With a snick, the root broke, but an astonishing foot and a half of it came slithering up, a yellow-white, tapering, waxen rope. Kirby half-expected to see magma welling up from the hole.

"Sonofabitch must go halfway down to hell," he muttered. Sighing, he threw the root aside and levered himself to his feet. He looked around at his lawn. Wrong. Couldn't call it a lawn. Couldn't call a good three-quarters of an acre of clay, gravel, rain-carved ruts, hordes of thriving weeds, and occasional sickly clumps of burned-out grass a lawn. A weed arboretum, maybe.

He had tried everything. The last three years had been a titanic struggle of one homeowner against the worst soil upon which any developer had ever plunked a tract house down. The "topsoil" the landscaping contractor had supplied, a pungent hash of mine tailings and cow manure, had washed away in a heavy rain shortly after Kirby and his wife had moved in. With good topsoil going for thirty dollars a small truckload, Kirby had called the contractor and had demanded a new lawn.

The contractor's reply: "Hey, talk to the man upstairs. We just throw the dirt down and plant. Rain ain't our department."

So Kirby spent the next few weekends raking and loosening the hard subsoil, and replanted. Nothing. He watered more. Nothing. He watered less. Nothing. He tried every conceivable seed and seed mixture: Kentucky bluegrass, perennial rye, red fescue, Chewings fescue, redtop, Merion blue, velvet bent, creeping bent, meadow fescue, annual blue, white clover ... even the zoysias and other exotic strains. Almost none of it came up, and that which did never lasted a summer. He lavished the ground with all manner of fertilizers and chemical nostrums. Commercial concoctions were useless. He top-dressed with sifted compost, hardwood ash, bone meal, cottonseed meal, superphosphate, and tankage — all to no avail. He spread the excreta of various animals — cow, chicken, horse, sheep, and goat. He had the soil tested, found it to be slightly acid, and spread lime. No luck. Muriate of potash — same result. Nitrate of soda —ditto. Monobasic potassium phosphate, potassium nitrate, calcium nitrate, magnesium sulfate, iron sulfate —ditto, ditto, ditto, ditto, ditto. In a fit of exasperation, he bought a Rototiller, chewed up the entire plot, and remade the lawn. It came up as before, only to choke and wither and die. The struggle became an obsession. He fought on. His wife got to the point where she cringed when she saw him put on his garden clothes and go out to the garage. Outside he would grumble and curse and mutter continually. His wife couldn't stand to hear it, shutting herself in the bedroom or flying out

of the house on needless shopping trips. He had carried on the crusade three summers running, and spent winter nights reading books on gardening and lawn care. Last winter he had tried the technique of sowing seed on top of the snow. Came spring, and the earth broke open with moist, pale green shoots — which strangled and shriveled when the dry season came. He flew into a rage. Half-berserk, he ripped out all the shrubs he had planted —even the rhododendrons, which were doing passably well. Afterward, he regretted the outburst, and apologized to Jenny. She was beyond being mollified, however, and threatened to leave him, suggesting that he seek professional help. It wasn't just the lawn, she said. It was everything. He had changed. Did he know that he was always talking to himself? Always, swearing darkly in that half-intelligible, dyspeptic murmur of his. She was frightened.

"Goddamnit, then leave!" He stalked into the garage.

She left, finally, about a month later.

Kirby stood on his sorry lawn as the van pulled in front of the house. He was tired, and felt useless. Two heavy blows last week. He had been furloughed at the plant —and him with a white-collar, middle-managerial position. "Things are going to hell in a fucking handbasket," is the way a fellow employee, also a victim of the ax, had put it. "When they don't have paper for us to push, you know it's getting bad." And his suit against the developer and the landscaping contractor had been thrown out of court. Also, he had had cold comfort in Jenny's lawyer's telling him that she didn't want the house. Nobody wanted the goddamn thing. "She wants half the capital gain when you sell," the lawyer had said. When he sold. He had laughed.

His gaze was drawn to the stacks and spires of Poseidon Chemical jutting above the low rise hills to the east. He had a résumé on file at Poseidon, but they weren't hiring. Who was? Besides, chemicals wasn't his business. Steel had been....

Chemicals. Maybe somewhere, he thought, somewhere there's a company that puts out a real miracle growing formula. Just a matter of the right molecules. Little things, molecules; like Ping-Pong balls, arranged in various configurations. Just the right combinations, and—

"Kirby?"

It was the UPS driver, yelling from the van.

"Yeah, right here."

Kirby crossed the lawn to the truck, absently kicking at rocklike clumps of clay.

"Somethin' for you," the driver said, handing over a large cardboard box, then passing him a clipboard. Kirby fumbled with the bulky box,

put it down, then scrawled his signature on the clipboard delivery list.

"Okeydoke!" The driver gunned the van's engine and pulled away.

Kirby walked back to the open garage, reading the label on the box. This was it, the fancy experimental grass seed. Probably another rip-off. Another failure. He couldn't even make out the name of the company. "Os ... Os-wee-kim?"

The label read OŚWIECIM HORTICULTURAL PRODUCTS, OŚWIECIM, POLAND. He hadn't ordered anything from Poland. Oh, here it was — IMPORTED EXCLUSIVELY BY GRANT IMPORTS, PASSAIC, NJ. Right. Polish grass. Sounded like a bad joke.

In the garage he took a hunting knife to the reinforced strapping tape and ripped the box open. Inside was a large, clear plastic bag full of fine seed. Some literature as well. He took out a small brochure and looked at it. It consisted of one short paragraph repeated in several languages — French, German, Italian, English, and others he couldn't identify — and photographs of plots of grass.

"Great."

He read the English.

Plant this seed with a grieving heart, and it will grow where other grasses will not. It will cover that which cannot be covered — shame, despair, tragedy, cruelty, and sin. This is the Grass of Healing. The wounded earth will take it to its bosom. Do not bother to nurture it, for it will grow if the earth has received that which has bled in innocence. This is the Grass of Remembrance.

"What the hell is this crap?" Disgusted, he crumpled the brochure and threw it into a corner.

Stooping, he cut open the plastic bag and ran his hand through the seed. Didn't look unusual; just ordinary grass seed, a pale beige in color. He had nothing to lose. He lifted the bag, carried it to the Scott's spreader, and dumped the entire contents in. It was late June, possibly the worst time to plant, but what the hell.

Later, Kirby slouched in the ersatz Eames chair in the living room, sucking absently on a can of beer while he half-watched the eleven o'clock news. He was mostly thinking. With one ear he heard the anchorman talking about trouble at the Poseidon works. An employee had blown the whistle on shoddy safety measures at the plant. A controversy had ensued.

Abruptly, he got up and turned the set off. Had he heard something? Yes, down the street a child was screaming. Laughing?

He sighed, and looked out the curtainless picture window. Jenny had made off with the curtains — why, he'd never know. She'd made them herself, probably. He peered out into the night. Something had been making him feel strange all afternoon, an edgy, antsy feeling. From being alone, most likely. He wasn't used to it yet. Outside, crickets clicked and chirped, cicadas buzzed in the brush covering the vacant lot next door. From far away came the disconsolate howl of a

dog. Kirby didn't like the way he was feeling; not at all. What the hell was wrong with him?

The crap in the brochure. The cryptic phrases had echoed in his head all afternoon. Even now. *The Grass of Healing.* Crazy stuff. *The wounded earth will take it to its bosom....* What could it all mean? ... *that which had bled in innocence.* Why would someone write junk like that in advertising material for grass seed? He couldn't get it out of his mind.

He went down to the game room and rewrote his résumé.

Kirby was still unemployed two weeks later (and still lacked a firm invitation to an interview), but the grass came up spectacularly well. He had not even bothered to water it. It hadn't rained, either — unless he was badly mistaken; the two weeks were a timeless, alcoholic blur to him. The ground was parched and cracked, but thick, vibrant shoots were poking through all over, oasis-green and resolute. Bare patches missed in seeding soon filled in, colonized by aggressive underground rhizomes snaking from neighboring plants. Weeds shriveled and died all over the lawn, and the dry husks of dead grubs surfaced, crowded out of their hibernating chambers like slum tenants displaced by urban renewal. The grass grew only so high — about two and a half inches — and stopped. Kirby fired up the Sears riding mower for once, for form's sake, and mowed dutifully, but by late August, the grass had gone untrimmed for a month.

There was not much remarkable about the way it looked.

Kneeling, Kirby tore a tiny plug out of the thick pelt of turf around him, and examined it. Over time, he had become something of an expert. The stem and blade of the individual plant looked any northern-climate bent grass, but at work here was an auxiliary aboveground growth mechanism — stolons, also called creepers — that made the plant extremely prolific. In this it was no different from the zoysias and other southern varieties such as St. Augustine grass, but those and others had failed here completely, and bluegrass, which utilized similar stratagem, had barely held its own.

Around the first of September, the lawn's growth curve seemed to reach a point of diminishing returns, and stabilized.

Then it began to die.

But not before Kirby started dreaming about Nazis in the vacant lot. The dreams started in mid-July.

"I don't want to dream about fucking Nazis again. Please, God, don't let me dream about them again."

Kirby was reduced to whimpering, slumped in the Eames chair with an all-night cable movie station on the tube, buzzed out of his brain on Jenny's prescription diet pills, an old

half-full bottle of which he had chanced across in a kitchen drawer among the balls of string and bits of aluminum foil and other oddments (Jenny had taken most of the culinary utensils). But the beer would finally get through to him, and he would nod off and dream about the fucking Nazis again standing out there in the tall grass of the vacant lot, black-helmeted, black-coated statues of Aryan manhood, the red of their armbands like open wounds upon their souls. They would stare at him, questioning him. He would be working on the lawn, usually reseeding by hand, scattering fistfuls of seed angrily into the wind, sweat running in ticklish rivulets down the back of his neck. They would stand out there, occasionally moving from side to side, now and then stepping forward toward the lot, but never coming out of the weeds to step on the grass. And he would yell, his throat constricted and burning, "What do you want? What do you want from me?" And one of them would answer, "*Wo bin Unschuldigen Kinder?*"

"Say it in English, motherfucker!"

"Where are the Innocents?"

"Get out of here! GET OUT!" Still casting grass seed at them as if engaged in some sort of exorcismal ritual, he would walk toward them until he came close enough to see the death's heads on their collars, insigna of the *Totenkopfverband.*

"*Wir müssen* ... we must guard this ground. It is our duty."

And he would wake up with his arms twitching and electric shocks convulsing his body, half-paralyzed and unable to scream.

He did not have the dreams every time he slept; if he had, Kirby's developing psychosis would have swallowed him in very short order indeed. As it was, the disease process, already considerably advanced by the time Jenny left him, was merely accelerated. First to have some intuition that Kirby's condition might well be clinical was Jim DeLuca, a friend who dropped over one evening to see how Kirby was getting along. Over beers, they b.s.'d awhile, and DeLuca got the unmistakable and disconcerting impression that he was talking to a man who was gradually losing the handle on things. Although he did not have a catalog of symptoms to refer to, he had done enough general reading to be disturbed by Kirby's free flight of ideas, his short attention span, his abrupt mood shifts. And even if he couldn't go by symptomatology, the horrible mess of the house, Kirby's haunted eyes and cadaverous general appearance was clue enough.

Still, DeLuca wasn't altogether sure. At this point, Kirby still had protracted moments of rationality.

"There aren't any jobs out there, Jim," Kirby lamented, shaking his head. "There always used to be jobs. What's going on?"

"It's called 'deindustrialization.' " DeLuca gulped from his can of Miller,

and belched loudly. "That's what's going on, Ted."

"I call it screwing the little guy. That's all it is. Just another way to fuck over people."

DeLuca nodded — and when he got home that night he tracked down Jenny's number and called her. Jenny agreed that something was wrong, but didn't know what to do. Kirby's parents were dead, and he had one brother in California, but Kirby hadn't seen him in years and he had an unlisted phone number. There was little that anyone could do, at least for now.

In the August heat of the house, the M-16 was cool in his hands. The rifle had been easy enough to purchase, even though sale and ownership of this fully automatic model was totally illegal. A friend of a friend dealt in them and in other contraband weaponry. Could this friend of a friend interest Kirby in a good deal on a reconditioned WWII-vintage army-issue Thompson submachine gun? Yes, he could, though Kirby had blown his already-depleted savings account on the M-16 and didn't know where the money for the Tommy would come from. Didn't care. At that point Kirby just wasn't thinking.

He had forgotten about the lawn. Didn't care. It was dying and he didn't care. Fixations are variable. Other things were bothering him: his life, the shape and contour of it, the substance of it. He didn't like it. It is difficult to describe exactly what he was feeling. His mind was a flux of half-formed thoughts, a tarn of half-congealed emotions. One could call it madness. But perhaps paranoid schizophrenia is that overpowering state of perception in which a human being begins to understand that ultimately his lot is that of a victim, at the mercy of ineluctable forces.

The Nazis still bothered him, too. Particularly unsettling was their appearing to him in the daytime as flickering images at the edges of his vision, vanishing when he looked at them directly. He would turn his head away and they'd be there, standing guard in the vacant lot, black scarecrows in a field of weeds -- and still those questioning eyes, eyes blue and steely, set in faces creased with the sorrows and pains of Hell, eyes that spoke: *Why are we here? There is nothing for us here.*

Kirby decided that Greenfield, the owner of the Tudor split-entry across the street, would be the first to get it. Kirby had the back of his neighbor's Adidas T-shirt in the sights of the M-16 as Greenfield sprayed the tied-down silver maple in the front yard.

This was shortly after having screamed at some airhead of a clerk at an employment agency, who, over the phone, had had the tactlessness to use the phrase "a man of your age" when telling Kirby how difficult it would be to find him a job. Kirby shot white heat into the receiver, inform-

ing the clerk in so many words that the age of forty did not necessarily signal the onset of senility. He had slammed the receiver down and cracked the ivory plastic of the pretty little Princess phone.

Maybe not Greenfield. What was it the Nazis kept asking? Where were the Innocents? How about this group of kids on bikes coming down the street? *Unschul-something kinder. Kinder.* Didn't that mean children? These looked like *unschul*-whatever-the-fuck-it-was children to him. He swung the barrel until he was tracking the kids. There were five or six of them, furiously pedaling bikes with smallish wheels and oversize handlebars, and colored plastic streamers flying from the handgrips. He tracked them until they flew past the house, then ran to a window of the family room to pick them up again. They raced on down the road — and here a strange thing happened.

It is said to happen usually when a person is drowning or is close to death. But in Kirby's case, it came at a critical decision point in his life. And his life didn't actually pass in front of his eyes, either. It was more like this: the entire geography of his life appeared to him, laid out on a detailed map in bas-relief, viewed from an aerial perspective. Here he was, at this set of coordinates, in this house —go back three years and he and Jenny were in the house on Delia Street, into which they had moved shortly after marrying — go back from there ... The map showed everything clearly. Here the small town of his boyhood in Michigan; there the Air Force base in Texas where he had undergone basic training , then had been discharged because of a recurring peptic ulcer; there the small college in northern Pennsylvania where he had taken his B.A. — here was every place he had spent time in, all the physical points of his life, all connected by dotted lines drawn in orange Magic Marker. Parallel to the lines lay red arrows pointed in the direction of forward time. And now as he crouched in the sweaty interior of his empty house (Jenny's brother had come and trucked away most of the furniture — Kirby hadn't protested), the last orange dotted line left the barrel of the M-16, leading directly to the kids. A huge floating red arrow swung with the line as it moved in a broad arc....

...until one of the guards stepped into his line of fire, holding up an admonishing palm, shaking his onyx-helmeted head. His eyes were preternaturally sad.

Kirby screamed and fell backward, sprawling on the parquet floor. He left the dropped rifle and fled into the basement. In a few minutes he was busy mixing painting — he had been meaning to whitewash the exposed concrete block in back of the house —the incident having failed to leave a mark on his mind, running from it like ink on waxed paper.

No, Kirby didn't fire his rifle until the day the whistle-blowing Poseidon

employee (long since terminated by direct order of the board of directors) was proved undeniably right.

Kirby was dozing in one of the spare bedrooms on the only bed Jenny's brother had left him. Sirens, shouting, and general commotion started him to full consciousness. A loudspeaker was blaring somewhere — a distorted voice announcing something unintelligible. He had lain down shortly after lunch, feeling weak and slightly nauseated. Up to that point he had been feeling a little better, had been drinking less, and had run out of the pills he had driven into the city to buy on a street corner in the ghetto district. He hadn't seen or dreamed of the Nazis in two weeks. It was mid-September, a Saturday afternoon, and the lawn was completely brown, though temperatures had been keeping to the mid-seventies.

He sat up and knew he was very ill, his stomach inverted and ready to erupt. He found it difficult to breathe. He got up, tottered to the bathroom, and threw up. After rinsing out his mouth, he went to the open sliding window in the family room.

Outside, the world was in the process of turning upside down. People were running everywhere. Volunteer fire trucks raced up and down the streets. A neighbor woman a few houses down was standing in her front yard, screaming, holding the limp body of her three-year-old daughter. He could hear the loudspeaker now. The voice was saying something about the necessity for immediate evacuation.

He noticed a film of yellow powder covering the windowsill. He ran a finger through it and rubbed his thumb and finger together. The stuff felt oily, and burned slightly. He rinsed his finger off under the kitchen faucet. Something told him to get the M-16.

Outside he stood on the concrete slab porch and watched with a curious detachment. Many people were visibly ill, staggering out of their homes, some already collapsed on lawns, driveways, and in the street. Kirby saw that the yellow powder was everywhere, showing up plainly on the concrete of the walk and driveway, less so as a light dusting on the grass. The air had a slight yellowish cast, carrying a rank, vinegary smell.

A wave of nausea passed over him, and he bent his head over until it passed. Straightening up, he saw a helmeted figure rushing toward him. It was, in fact, a local policeman wearing a gas mask, but the midnight-blue uniform and the mask made him look enough like one of the dream-figure Nazis to make Kirby take a step back and raise the rifle.

The cop stopped in his tracks and threw his hands up, looking sideways out of the goggle-eyes of the mask.

"Are you crazy?" he yelled. "Haven't you heard?" The voice was

muffled, and Kirby couldn't quite make him out.

"Go away," Kirby told him.

"The plant — there's been an accident. This stuff is killing people! Got to get out now! Is there anyone else in the—?" The cop put a hand to his chest and coughed.

"You people have to leave me alone," Kirby said.

"DROP IT! DROP THE GUN!"

Kirby shifted his eyes to the right. Two more cops in masks had him covered, crouching behind the doors of a squad car.

"DROP IT! NOW!"

Kirby stood there, statuelike and implacable.

The tableau lasted until the first cop doubled over and fell to his knees. He ripped off the mask and vomited on Kirby's brown lawn. Kirby watched.

The cops fired two shots each, three going wild, one creasing his back and shattering the glass of the storm door. Ignoring the searing pain along his shoulder blades, Kirby emptied half a clip on full automatic at the squad car. He lowered the rifle and looked, not bothering to take cover. The cop on the near side of the car was down. He couldn't see the other one. The first cop was writhing on the lawn, thin, bloody foam dribbling from his lips. Kirby turned and went into the house, shutting the front door.

In the kitchen the shakes hit him. Bracing himself by holding on to the front of the sink, he waited until the seizure passed, then picked up the rifle and lurched out the back door.

The surviving cop was waiting for him, and this time the cop's aim was better. He dropped Kirby with one shot to the upper back.

Face down in his lawn, Kirby noticed an amazing thing before he died. The bottommost parts of the grass stems were green! The grass wasn't dead; it was waiting. It hadn't died after all! It made him happy.

The substance released by the minor explosion at Poseidon Chemical was so toxic that cleanup efforts were hampered. They never did get all the bodies out. The three-square-mile area, pronounced "semipermanently nonutilizable" by the bureaucrats whose job it is to be creative with language, became the final repository for some twenty-five hundred unrecovered corpses.

A five-year-long investigation began. Why had officials at the plant delayed three hours in reporting the incident? Why had safety procedures been so laxly adhered to with the plant so near a heavily populated area? Why had warnings been ignored? Who was responsible?

It seemed that everyone had just been following orders.

One mildly interesting note: the cleanup crews marveled at how some of the lawn grass around the houses had survived. Everything else had died—

forests of trees stood bare-limbed and gray, scrub brush had died to the ground and stayed there, even the lowliest weed had refused to germinate. But in one area a patch of healthy grass was spreading outward year after year. No one knew what to make of it, and no one had a clue as to why the grass looked as if someone were cutting it. And nobody bothered to find out why except one scientific team from the agriculture department of the state university, who went in to get samples. But they got the hell out of there fast and never came back.

The guards saw to that.

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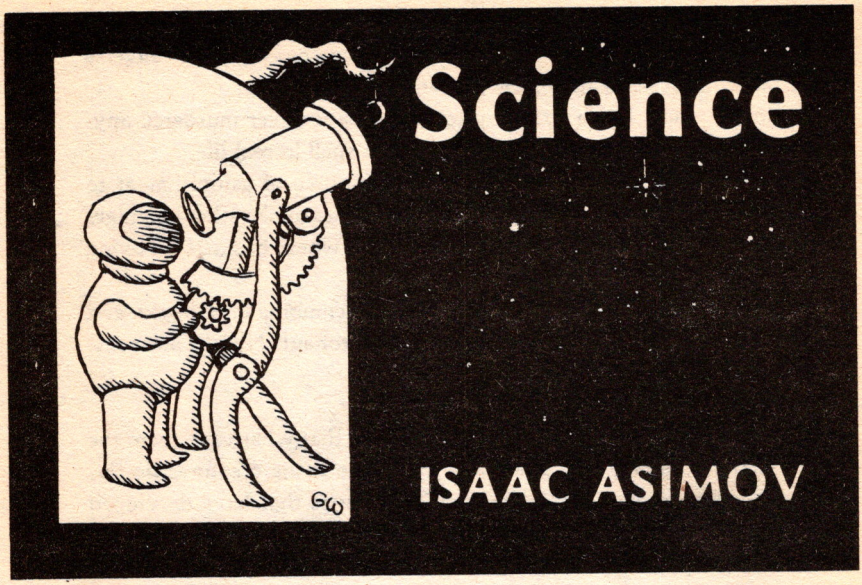


Drawing by Gahan Wilson

UP WE GO

I was in Boston the other week in order to help dedicate a new building at Boston University Medical Center. I am, after all, a Professor of Biochemistry there, and I ought to do *something* to prove it once in a while.

I was giving a luncheon talk, and before lunch I was interviewed and was told that the interview would appear the next day in *USA Today* — an issue I didn't happen to get. (Despite the reputation I have as possessing a monstrous ego, I usually manage not to see myself in the papers or on TV. I wonder why. Can it be that I *don't* have a monstrous ego?)

Someone said to me a couple of days later, "There was an interview with you in *USA Today* yesterday."

"Really?" I said. "I didn't see it. Was it interesting?"

"They said you don't fly," was the answer.

Big news! Everytime I am interviewed that item is featured. Not one interviewer in uncounted number of years has failed to ask why I don't fly. The answer is, of course, that I have a fear of flying and have no interest in correcting that fear. But so what? What makes it such headline news every time?

When I suggest that my non-flying is unimportant, the interviewer is bound to muse over the curious fact that I flit from one end of the Universe to the other in my imagination, yet I don't fly in real life.

Again, so what? I also write mysteries yet have never murdered anyone, and write fantasies without ever casting a spell in real life.

It gets a little wearisome to be a constant source of astonishment to everyone simply because I don't fly, and I sometimes think rather longingly that I would have been saved the trouble if the whole business of flying hadn't been thought up in the first place.

So let's consider the origins of this business of climbing into the sky and ask a question. What was the name of the first aeronaut? No, the answer is not Orville Wright.

People have always wanted to fly. I suppose that what gave them the idea of doing so in the first place was that some living creatures *do* fly. There are three groups of animals now in existence that have developed true flight: insects, birds, and bats. (There was a fourth group — the now-extinct flying reptiles of the Mesozoic — but their existence was unknown to human beings until the 19th Century.)

All flying organisms have one thing in common: wings that beat against the air. Each type, however, has wings of a characteristic type. Human beings have supplied each wing type with mythical characters to suit, and have in this way managed to make very clear the relative popularity of the three. Thus: demons and dragons sport bat-wings; fairies have gauzy butterfly-wings; angels are equipped with large bird-wings.

When human beings dreamed of flight, it might be by sheer magic: carpets that flew at the sound of a magic word, wooden horses that flew at the turn of a magic peg, and so on. When a certain realism was demanded, the flying creature was imagined to have wings. The most famous example is Pegasus, the winged horse.

No one among the ancients seems to have noticed that all flying organisms were small. Insects are tiny, bats are usually mouse-sized, and even the largest flying birds are much smaller than many non-flying animals (or even non-flying birds such as ostriches). If this had been noticed, people might have deduced that there was no reasonable way in which really massive creatures could fly. There could be no winged pythons (dragons), no winged horses — and no winged men.

If people ignored this obvious (in hindsight) deduction, it was perhaps because it seemed to them that it was something other than smallness that

was the key to flight. It was the birds that were flying creatures par excellence and what birds had that no non-bird had was — feathers.

What's more, feathers are easy to associate with flight. They are so light that they have become a byword for that quality. "Light as a feather" is the cliche. A small fluffy feather will drift in the air, moving upward at every puff of wind, almost as though it were trying to fly all by itself, even without the compulsion of inner life.

It seemed natural to suppose that if a man were going to fly, it was not so much wings with which he must supply himself, as feathers.

Thus when Daedalus, in the Greek myths, wanted to escape from Crete, he manufactured wings by gluing together feathers with wax. He and his son, Icarus, equipped with these wing-shaped conglomerations of feathers, were able to fly not through anything even vaguely aerodynamic, but through the aeronautical properties of the feathers. When Icarus flew too high and, therefore, too near the Sun, the wax melted, the feathers flew apart, and he fell to his death.

In actual fact, nothing but a bird has ever flown with feathers, nor has any human being nor any human artifact ever flown by flapping wings, whether those wings were equipped with feathers or not. Active propulsion through the air, when it came, was by whirling propellors or by jet exhaust, methods no naturally flying organism uses.

It is not, however, necessary to fly in order to travel through the air and be an aeronaut. That is, it is not necessary to move independently of the wind. If suffices to move *with* the wind and to take advantage of updrafts to keep from descending under the inexorable pull of gravity — at least for a while. Such moving with the wind is "gliding."

Some birds which can fly perfectly well will, at times, glide for substantial periods of time, their wings stretched out and held steady. Anyone watching a bird do this might well get the impression that gliding is more fun than flying. Flying requires constant and energetic toil, while gliding is restful.

Some animals (the flying squirrel, the flying lemur, the flying phalanger and others) that can *not* fly, can nevertheless glide. Their "flights" are, to be sure, quite limited when compared with those of the really successful fliers. Gliders are passive rather than active; they move under the control of the wind rather than of the will.

Nevertheless, it is far simpler to emulate gliding than flying. Anything light and flat that presents a large surface to the air can be made to glide

through the air. Make a gliding object light enough and large enough and devise a way of maneuvering it from the ground so as to have it take advantage of updrafts, and you have a kite — something that has been used as a toy in eastern Asia from ancient times.

The larger the kite, the greater its surface area compared to its total weight; the more extraneous weight it will carry. If a kite is made large enough (and yet strong enough) it can carry a human being. This is particularly so if the science of aerodymanics is developed and if a large kite (or "glider") is shaped in such a way as to increase its efficiency. In 1891, the German aeronaut Otto Lilienthal (1848-1896) built the first glider capable of carrying a human being and sailed the air in it. (Five years later, alas, Lilienthal died in a glider crash.)

We all know that gliders look like flimsy airplanes without engines or propellors. In fact, in 1903, when the brothers Wilbur Wright (1867-1912) and Orville Wright (1871-1948) invented the airplane, they did so by adding an engine and propellors to a glider which they had improved in various ways.

Can we say, then, that Otto Lilienthal was the first aeronaut? No, for if we do, we would be wrong, since Lilienthal was not the first by over a century. It seems there is a third way of travelling usefully* through the air — not flying, not gliding, but *floating*.

From the dim beginnings of human thought, people must have noted that smoke from a fire moves upward through the air, and that in the neighborhood of a fire, light objects —pieces of ash, bits of soot, fragments of feather or leaves, move upward with the smoke.

Undoubtedly not one in a million of all those who observed this gave it any thought at all. The Greek philosophers did, however, since it was their business to make sense out of the Universe. Aristotle (384-322 B.C.), in his summary of the science of his day, worked it out this way about 340 B.C.

There are five basic substances that make up the Universe: earth, water, air, fire and aether. These are arranged in concentric shells. The earth is at the center, a solid sphere. Around it is a shell of water (not sufficient for a complete shell so that the continents are exposed). Around earth and water is a shell of air, and around that a shell of fire (ordinarily invisible, but occasionally seen as a flash of lightning). On the very outside is the aether, which makes up the heavenly bodies.

**Let's leave out of account falling or jumping off a cliff, being carried up by a tornado, or other such destructive events.*

Each substance had its place, and when it was, for some reason, out of place, it hastened to return. Thus any solid object suspended in air fell to the earth as soon as it was released. On the other hand, water or air trapped underground will tend to rise if released. In particular, a fire once started will strive to reach its place up above the air. That is why flames leap upward. Smoke, which contains much in the way of fiery particles, also moves upward through the air and with such force that it can carry light non-fire particles with it, at least for a while.

This was a very sensible explanation, given the knowledge of the time, and the matter was questioned no more.

Of course, there were problems with the explanation. A stone released on the surface of the pond, sinks through the water and comes to rest on the earthy bottom as one would expect by Aristotle's theory. Wood, however, which, like stone, is solid, and should therefore be thought to be a form of earth, would, if released on the surface of a pond, remain there, floating on the water indefinitely.

An Aristotelian explanation might be that wood contains an admixture of airy particles that imparts enough natural upward movement to make it float — and that's not such a bad attempt at explanation, either.

The Greek mathematician Archimedes (287-212 B.C.), however, worked out the principles of buoyancy. This explained floating by comparing densities of solid objects with water. A solid that was less dense than water would float in water. Floating was thus handled in quantitative terms, and not merely qualitatively. By measuring density, one could not only predict that a substance would float, but also exactly how far it would sink into water before coming to a floating rest. It also explained why an object that did not float nevertheless was reduced in weight when immersed in water and just by how much its weight would be reduced.

In short, Archimedes' explanation was much more satisfactory than Aristotle's was.

It followed, then, that the principle of buoyancy might be applied to air as well. Something that was less dense than air would rise in air, just as something that was less dense than water would rise if immersed in water. This analogy occurred to no one, however, for eighteen centuries after Archimedes' time, simply because no one thought of air as in any way analogous to water. Air was not recognized as a substance, in fact.

The turning point came in 1643, when the Italian physicist Evangelista Torricelli (1608-1647) demonstrated that the atmosphere (and, therefore, any sample of air) had measurable weight. The atmosphere could, in fact,

support a column of mercury thirty inches high (such a column being the first barometer). In this way, air was finally recognized as matter — very attenuated matter, but matter.

One could reason from Torricelli's discovery that if a given volume of any substance weighed less than that same volume of air, the substance would be less dense than air and would rise.

Then, in 1648, the French mathematician Blaise Pascal (1623-1662) persuaded his brother-in-law to climb a local mountain with two barometers and showed that the weight of the atmosphere declined with height. In fact, the weight declined in such a way that it was plain the density of air decreased with height.

This meant that a substance less dense than air would rise until it reached a height at which its density matched that of the thinning air. It would then rise no higher.

So far, so good, but there was no substance known that was less dense than air. Even the least dense of the ordinary liquids and solids known to human beings of the time was hundreds of times as dense as air.

But what about no substance at all? What about nothingness?

When Torricelli constructed his barometer, there was a space above the top of the mercury column that contained nothing but a trace of mercury vapor. It was the first "vacuum" ever created by human beings, and a vacuum is certainly less dense than air.

What's more, in 1650, a German physicist, Otto von Guericke (1602-1687), invented an air-pump which, for the first time, could (with a lot of hard work) produce a considerable volume of vacuum.

About 1670, therefore, an Italian physicist, Francesco de Lana (1631-1687), became the first to suggest the construction of something that would float in air. He pointed out that if a thin copper sphere were to be evacuated, then the total weight of the copper averaged over the volume of the sphere (with no air inside to add to the weight) would be less than that of an equal volume of air. Such an evacuated sphere would rise. If the spheres were made large enough, and if enough of them were attached to some sort of light gondola, the whole would rise into the air carrying a man.

Actually, the scheme was not practical. If a copper sphere were thin enough to rise upon evacuation, the copper would be far too thin to withstand the air pressure to which it would be exposed. It would collapse as it was evacuated. If the sphere were thick enough to withstand the air pressure, it would be too thick to average out to less-than-air density under any

practical circumstances. Nevertheless, de Lana was the first to envisage a "balloon" (an Italian word meaning "a large ball.")

De Lana's notion of using a vacuum for buoyancy was not the end, however. In the 1620's, a Flemish chemist, Jan Baptista van Helmont (1580-1635), was the first to recognize that there were different gases (he was the first to use that word) and that air was not unique. In particular he was the first to study the gas we now call "carbon dioxide."

It might be that gases exist that are less dense than air and that would therefore float in air but, if so, carbon dioxide was not it, for it happens to be about 1.5 times as dense as air. It was not, however, until the 1760's that anyone measured the densities of particular gases, so that it was not until then that anyone could reasonably speculate on gas-filled balloons.

In 1766, the English chemist Henry Cavendish (1731-1810) produced a gas by the action of acids on metals. He found it to be quite inflammable and he therefore called it "fire gas." He measured its density and found it to be only 0.07 times that of air. This set a record for the density of normal substances under Earth-surface conditions that has endured to the present day.

In 1784, Cavendish found that hydrogen, on burning, formed water, so that the French chemist Antoine-Laurent Lavoisier (1743-1794), named it "hydrogen" (from Greek words meaning "water-producer").

Let us suppose now that we have a volume of air weighing 1 kilogram. That same volume of vacuum would weigh 0 kilograms, and if we can imagine ourselves hanging weights on that volume of vacuum, we could hang 1 kilogram on it to bring its weight up to that of the same volume of air (and thus bring the average density of the system up to that of air). This would just keep the vacuum from rising.

If, instead, we take the same volume of hydrogen, that would have a weight of 0.07 kilograms, and we would have to have a weight of 0.093 kilograms upon it to make its weight equal to that of the same volume of air and keep it from rising. Hydrogen, in other words, would have a surprising 93 percent of the buoyancy of vacuum — and it is a lot easier to fill a container with hydrogen than to evacuate it.

What's more, hydrogen, under ordinary conditions, would have the same number of molecules per unit volume that air has. Although hydrogen molecules are lighter than air molecules, hydrogen molecules move faster, and in the end the momentum of the molecues (and, therefore, the pressure) is the same in both cases.

This means that whereas vacuum, when used for its buoyancy effect, must be contained by metal thick enough to withstand air pressure, which adds prohibitive weight to the system, the condition is quite different for hydrogen. The pressure of hydrogen inside the container would just balance the pressure of air outside, so that the container itself could be as flimsy and light as possible — as long as it is reasonably gas-tight and doesn't allow hydrogen to diffuse outward, or air to diffuse inward too quickly.

You would think, then, that as soon as Cavendish had discovered the low density of hydrogen, he, or possibly someone else, would have thought of its buoyancy effect and gone about the building of a balloon. Not so! However clear hindsight may be, foresight can be remarkably dull, even for a first-class scientist like Cavendish.

In point of fact, hydrogen ended up having nothing to do with the invention of the balloon.

This brings us back to the earlier question about smoke rising. Why does smoke rise when it is made up of particles that are individually denser than air, and contains gases, like carbon dioxide, that are also denser than air.

The key to the answer came in 1676, when a French physicist, Edme Mariotte (1620-1684), noted that air expands when it is heated. If a given quantity of air expands, its fixed amount of mass is spread out over a larger volume, which is another way of saying that its density decreases. In other words, warm air is less dense than cold air, and has a buoyancy effect. The warmer the air, the greater the buoyancy effect. This was made plainer, in 1699, by the studies on gases of a French physicist, Guillaume Amontons (1663-1705).

An ordinary wood fire heats the air about it to a temperature of up to 700 C., and the density of air at such a temperature is only half that of ordinary air. Such hot air has about half the buoyancy effect of hydrogen (or vacuum, for that matter). The column of hot air rises vigorously and carries with it other gases and the light materials that make up smoke.

There are advantages of hot air over hydrogen that tend to make up for the fact that hot air is not quite as buoyant. Hot air is easily obtainable; all you need is a fire. Hydrogen, on the other hand, is comparably difficult to collect in quantity. Furthermore, hot air is not inflammable, while hydrogen is actually explosive. On the other hand, the buoyancy of hydrogen is permanent, whereas hot air loses buoyancy rapidly as it cools, so that you must not merely have a fire at the start, but keep it going as long as you want to stay aloft.

One would suppose that as soon as the low density and, therefore, buoyancy of heated air was recognized, someone would conceive of a balloon and try to build one, but that's hindsight again. It took a century for the thought to occur to anyone.

The brothers Joseph Michel Montgolfier (1740-1810) and Jacques Etienne Montgolfier (1745-1799) were two of the sixteen children of a well-to-do paper manufacturer. An ancestor of theirs (according to family tradition) had learned the technique of paper manufacture while in a prison in Damascus at the time of the Crusades, and had brought it back from the east.

The brothers had watched objects rising in the hot air produced by fires, and the older brother had been reading about the new findings of gases and, somehow, they got the notion of a hot-air balloon.

First, they tried it at home. In November, 1782, they burned paper under a silk bag with an opening at the bottom. The air within the bag heated up and it rose to the ceiling. They repeated the experiment in the open air, and the bag rose to a height of 20 metres (that is, the height of a six-story building). They kept trying larger and larger bags and finally decided on a public demonstration.

On June 5, 1783, in the market place of their home town, the brothers used a large linen bag, 10.5 metres (35 feet) in diameter, and filled it with hot air. They had invited everyone in town to witness the experiment, and the crowd saw the balloon rise 2 kilometres (1.2 miles) into the air and stay in the air for 10 minutes during which it slowly descended as its air content cooled. It travelled 2.5 kilometers (1.5 miles) during its descent. It was an electrifying demonstration and it created a sensation.

The news travelled to Paris, and there a French physicist, Jacques Alexandre Cesar Charles (1746-1823), was told of it. Instantly, he thought of hydrogen.

On August 27, 1783, he prepared for a demonstration of his own in Paris. He used 225 kilograms of acid and 450 kilograms of iron pellets to produce hydrogen. The gas fizzed up madly and rose into the open neck of the bag held over it, displacing most of the air. When the balloon was released, it rose a kilometre into the air. The hydrogen slowly diffused out of the bag, but as it lost height it travelled 25 kilometres (15 miles) in 45 minutes before coming to earth.

When it did so, the peasants of the neighborhood, who had heard nothing of ballooning and could only assume a vehicle flying through air (a UFO, we would call it today) to be carrying invaders from some other

world, bravely attacked it with scythes and pitchforks and destroyed it.

These balloons were simply bags. It was clear though that one could hang weights on the balloons, which would slow their rise and limit their height, yet not destroy the buoyancy effect altogether. The Montgolfiers, with this in mind, planned the most sensational demonstration yet for the French court at Versailles.

On September 19, 1783, they made use of a balloon of record size, one that was 13 metres (43 feet) in diameter. Under it was a wicker basket into which were placed a rooster, a duck and a sheep. The wicker basket also contained a metal brazier within which there was fuel. The fuel was set on fire, and the balloon filled with hot air. It was released, and up it went before the eyes of a crowd of 300,000 people (including the King and Queen of France, and Benjamin Franklin). The balloon, with its animal load, travelled for 3 kilometres (nearly 2 miles) before coming down once the fuel was consumed and its air content cooled. The first person on the scene when the balloon landed was a young French chemist, Jean Francois Pilatre de Rozier (1756-1785).

The animals were not harmed and they were the first living things ever to be carried through the air by a man-made contraption.

But if a sheep, why not a man? That was clearly the next step. King Louis XVI, who was fascinated by the demonstration, was nervous about manned flight. It seemed too dangerous, and he suggested that condemned criminals should be asked to volunteer for the flight with the promise of a pardon if they survived.

Pilatre de Rozier, however, craved the honor. He and a French nobleman, Marquis d'Arlandes argued their case with Queen Marie Antoinette, convinced her, and she convinced the king.

On November 20, 1783, Pilatre de Rozier and the Marquis d'Arlandes got into a wicker basket and went up in a hot-air balloon. They were carried 8 kilometres (5 miles) in 23 minutes, and landed unharmed.

These two were the first aeronauts, 120 years before the Wright brothers, and 108 years before Lilienthal.

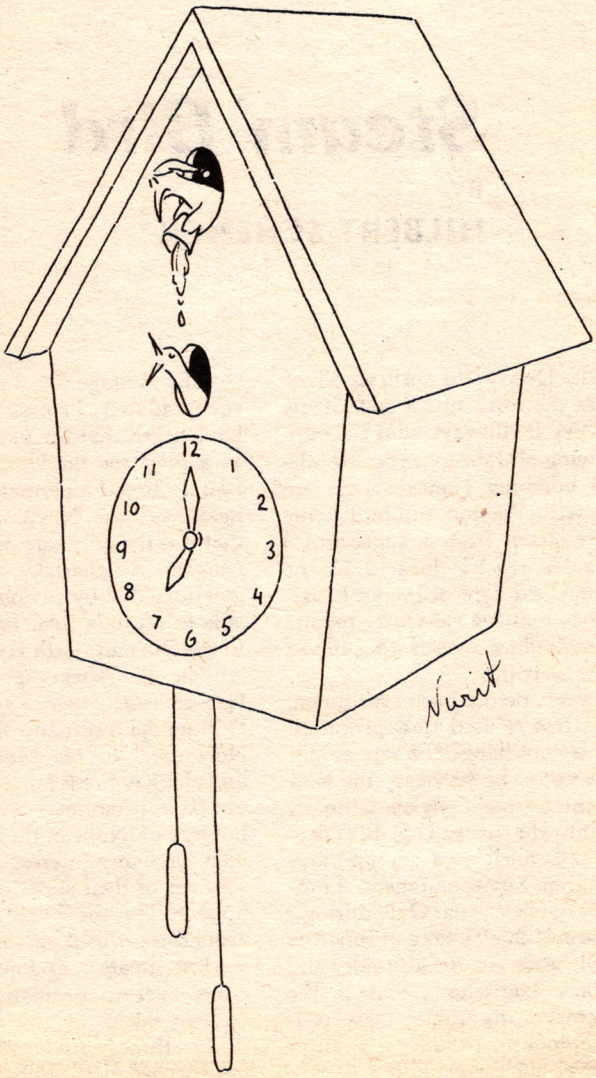
Pilatre de Rozier earned another remarkable first a year and a half later.

On January 7, 1785, the English Channel was crossed for the first time by balloon. On board were a Frenchman, Jean Pierre Francois Blanchard (1750-1809), who was the inventor of the parachute, and an American, John Jeffries (1745-1819).

On June 15, 1785, Pilatre de Rozier and another Frenchman, Jules Romain, tried to duplicate the feat in the other direction. However, the fire

used to heat the air in his balloon set the fabric of the balloon aflame, and the two aeronauts fell 1500 metres to their death.

So the first aeronaut, like a real-life Icarus, died in the first aeronautical disaster.



Here is the second and concluding part of Hilbert Schenck's short novel about a U.S.-Soviet confrontation, a gigantic nuclear powered aircraft, and an offbeat and colorful crew of "steam freaks" — an unlikely, but most entertaining combination.

Steam Bird

BY

HILBERT SCHENCK

SYNOPSIS: Deep in the north woods of Maine lies the town of Moosefoot, its lengthy WW II runways, and the only existing wing of three gigantic, atomic-powered bombing planes. These are fan-jets, with the fan turbines being driven by steam from a supercritical boiling-water reactor located in the heavily shielded core of the vast fuselage. The massive aircraft require ninety-six landing wheels to support their huge weight.

Built years before but never flown, since Congress refused to appropriate funds for a "hot hanger" where an active plane could be serviced, the lead aircraft, the *Samuel Langley*, is finally ordered into the air by U.S. President Shamus O'Connell as a countermove to an apparent Soviet shipment of missile bodies to Nicaragua. Only during a very tense and chancy takeoff run does O'Connell learn from his aide and crony, Jack Hanrahan, that if the *Langley* crashes, its reactor may "roll-up" or implode to produce a twenty-kiloton-level nuclear explosion.

The Pentagon and the national security adviser, Professor Bzggnartsky, have urged that the plane be launched as a ploy for the U.S. to annex "Ice Island Three," a permanent ice landing field near the North Pole, knowing that it is the only safe place to land the *Langley*. Bzggnartsky and the Pentagon hope that by so doing, they will be able to create a SAC base there, close to the Russian north coast.

The *Langley*'s captain is Colonel Robert Muth, owner of an extensive HO model railroad, the "Tidewater Northern," in his Moosefoot home, and along with his family and the other air base personnel, a fanatic steam-hobby nut. None of the Moosefoot airmen have any interest in the political schemes of their superiors, but instead hope to fly the huge *Langley* in an around-the-world goodwill mission, the last, greatest, and most spectacular effort ever to be made by a steam-driven vehicle.

The three Muth children, organized and coached by their uncle, Maine Con-

gressman Nate Hazelton, are publicly attempting to coax President O'Connell to visit Moosefoot before he gives final orders to the *Langley*. As twelve-year-old Alice Muth, dressed in a fussy confirmation frock, charms the TV interviewers, the president rages against the Pentagon generals and announces he would rather ditch the *Langley* at sea than let it serve as a trick to violate a U.N. resolution on keeping nuclear weapons off the ice pack.

The other Muth children, Bob Junior and Melissa, also disguised in very straight-arrow, Middle American getups, meet the press in Bangor, then go up to Moosefoot with their uncle in a fire-service helicopter piloted by stubby Stubb Moody, family friend and chauffeur-pilot for the congressman. While Hazelton, the Muth children, and their mother, Betty Lou, await the 11 P.M. TV news about the *Langley*, the monster aircraft continues to climb while its crew discusses the various steam speed and other records the *Langley* is continually exceeding. Colonel Muth confides to his copilot, Gaby Jackson, another steam freak, his hope that they will eventually be ordered to make a transpolar circumnavigation of the world.

In Washington, Jack Hanrahan and the president finally discover that Moosefoot Air Base and all its personnel are clearly "hobby kooks" whose every thought concerns what base commander General Beardsley referred to earlier in the day as, "The world of steam," but this discovery only bewilders and dismays them. As the *Langley* finally nears its service altitude close to the Pole, the Muths, Hazelton, the president, and just about everyone else in the country awaits the 11 P.M. TV news and some hint of what the gigantic aircraft will do next.

X

Far out over the polar ice, beyond Ellesmere or any other land, the *Langley* finally achieved her maximum service altitude, 20,200 feet, and her maximum speed, a bit over 310 miles an hour. The cold, dense polar air removed heat effectively from the huge steam condensers, and Major Fisk had been able to steadily increase the reactor power during the climb. As they topped twenty thousand feet, he spoke quietly. "Bob, she's made it, guy! One million horsepower!"

"Think of that, Gaby,'" said Bob Muth to Captain Jackson, "a million horses! In *flight*, for God's sake!"

"We can take her anywhere, Bob," said Captain Jackson in a suddenly tight and passionate voice, pulling his mike pads away from his throat. "Even if the president orders us to ditch or go home. We could take her right around, Bob. We could *do* it, baby! They wouldn't dare *touch* us!"

Colonel Muth looked steadily at his copilot, then pulled his mike off as well. "O.K., I've thought about that, good buddy. And they'd touch us plenty after we landed."

"So what, Bob? Then it would be *done!*"

"Gaby," said Bob Muth quietly. "You know Congressman Hazelton is as big a steam freak as any of us, and

he's working on this. Nobody's given us any orders yet, so let's see how things seem to be breaking."

Colonel Muth took a deep breath. "Gaby, ... Gresley, Chapelon, old Riddles — they never spared the regulator, whatever the chances. Hell, we can't do any less at this point. Just pray they get the message across back at Moosefoot."

But Jackson was suddenly seized by a wave of despair. He had been in the Air Force a long time, and it suddenly seemed completely impossible that they would sanction such a spectacular junket for a secret bombing plane ostensibly sent aloft to terrify the Russians. He shook his head bitterly. "Bob, they won't do it, baby! It just ... it just isn't their way of dealing with this mission!"

Colonel Muth put a calming hand on his copilot's arm. "Gaby," he said quietly, turning his head to make sure nobody had wandered into the flight office unannounced, "if we just go and land at the ice island after a few days of prowling around the Arctic, the Washington hawks, who never fly in anything but upfront in a 747 with a decent wine list, will zip all sorts of stuff in to deal with us. Then the Russians can decide where to stab us in return. But" — and Bob Muth held up his hand — "think about the *Langley* as the last and greatest act in the history of aeronautics. Now the ice island can be seen as something different. As my son would say, we've got to change this from an Air Force trip to a people's trip."

Captain Jackson grinned and nodded, and the two men fitted their mike pads back on and sat quietly thinking their own elevated and somber thoughts.

Sergeant Stewart had been staring for some moments at the "Great Days in Steam History" calendar hanging over his desk in the undercarriage office, and, noting the appropriateness of the entry for that date, he spoke at once to the crew. "Listen to this, Harry and the rest of you. Exactly thirty-two years ago on this day, Engineer Sam Bouchard, one of the Pennsy's top runners. was scheduled to take the second section of the Broadway Limited out of Thirtieth Street in Philly with a duplex-drive T-1, No. 6110. The engine on the first section failed on start, and Engineer Bouchard backed his train down on the first-section varnish, coupled the whole caboodle together — over fourteen hundred tons — and went tearing out of Thirtieth Street more than an hour late. He'd made back more than twenty minutes by Harrisburg and came into Chicago just about on time. They say that over the last seventy miles, Fort Wayne to Englewood, Bouchard's T-1 *averaged* over 102 miles an hour. Cecil J. Allen considers this performance to be the greatest sustained effort by a single steam locomotive in the entire history of steam traction."

"Wow!" said Colonel Muth. "Stir-

ring stuff, all right! How'd you like to ride the footplate on that one, Gaby? Listen, Jim, what about getting a couple of T-1s on the Tidewater Northern? We could speed up the Dixie, maybe run her at over one hundred on the Tidewater-to-Bridgeton turn?"

"That's a good thought, Bob," said Sergeant Stewart. "Why don't you raise it at the next meeting of the Motive Power Committee? Of course, we'd have to shift the railroad about five years ahead to use T-1s. Getting awfully close to the diesel era."

Colonel Muth frowned strongly at his controls. "Jim, as the chairman of the Motive Power Committee, I think I can assure you that Tidewater Northern will not enter that later and lesser time. In any case, a properly maintained T-1 should easily do the century with even an eleven-hundred-ton Dixie Flyer."

These hypothetical schedulings were, in fact, being severely put to actual test at about the same time in the Muth basement. Having discovered that the three biggest Pacifics in the loco stud, coupled to a reasonable nine-hundred-scale-ton train, could indeed get from Tidewater to Bridgeton at nearly one hundred miles an hour, Bob Junior and Melissa now had to share their experiments with everybody else.

Congressman Hazelton took the Dixie Flyer over the route at just about ninety-five, start to pass, and then Betty Lou raised it to a bit under the century. When it was Alice's turn, she crammed the regulators hard over and spun her three sets of drivers for a quarter-mile out of Tidewater, saying excitedly, "You slow them up too far ahead of the hill, Uncle Nate!"

Alice, to make her point, came over the top of Sherman Hill doing almost ninety, then hit her brakes and sanders. As might be expected, nothing much happened except that the Dixie went on down the hill constantly accelerating, passing the "Slow-30-MPH" signs doing over ninety-five, and coming into the siding and helper-pocket switchwork at over one hundred scale-miles an hour. The big green Pacifics rolled through the curves and points like foundering barks, and the varnish jammed through behind with some jerks and a clatter that would put every coffee cup in a real diner on the ceiling. But the high-wheeled beauties sailed on like the ladies they were, and the heavyweight cars stayed on the rails, one way or another, so that Alice came whistling through Bridgeton with a start-to-pass average of 108 scale-miles an hour.

After the power was cut off, Alice sat staring silently out at her engines with a very red face. "Well," said Melissa in an enraged hiss. "What do you think this *is*, Alice? A *Lionel set*, for God's sake!"

Alice stared down at her lap. "I'm very sorry," she said in a little voice. "I forgot the brakes don't work so good

over eighty, going down a hill. I really didn't mean to do that, everybody ... honest." This last word was spoken in a very small and very teary voice.

Congressman Hazelton got up from his position as Tidewater yardmaster and came over to the engineer's cabs to give Alice a warm hug. "A handsome apology, Alice, and one that we *all*" — and he looked pointedly at Melissa — "are happy to accept. And, let me remind you, Melissa," said the Congressman, looking his foxiest and peering over his half-glasses, "that far older and wiser heads than Alice's lovely golden crown have utterly succumbed to the seductive lure of locomotive speed. For example, Gresley drove *Silver Fox* to 113 on Stoke bank, the whole middle gear blew apart and threw crap back under the train, almost derailing the damn thing. Even worse, old Riddles, Stanier's assistant on the London-Midland-Scottish, got *Coronation Scot* going at 114 down the ten-mile bank into Crewe station, trying to break the steam speed record. A mile out of the station, they were still doing a hundred, and every wooden brake block on the varnish was in flames. They came up on the platform entrance 20-MPH speed restrictions at over seventy and went through three reverse curves and six entry points with a slam-bang that put everything in the diner, including the passengers, down on the floor." Nate Hazelton hugged Alice tighter. "So you see, Melissa, Alice is just one more good C.M.E. who let her heart run away with her head. My goodness, dear friends, that's the whole point!"

And if Melissa thought that things might have been different if Dad's three best engines had gone onto the ground at speed, she managed not to say it, while the whole crew put the Tidewater Northern back into its operational configuration for the next regular session.

By the time the eleven o'clock news came on, everyone was settled around bowls of popcorn, peering at all three networks and listening to one. The *Langley* was the main topic everywhere, and there were several in-flight shots of the plane, all from ahead. "Look!" cried Alice. "There's Dad and Gaby Jackson!" And sure enough, up into the cold, pure air they had taken a massive zoom lens that could bring the *Langley*'s flight office up so very close that you could even see the men talking.

Congressman Hazelton gave a bark of laughter. "What'll you bet that Bob is explaining to Gaby why continuous-cam surfaces make the best high-speed valve gear."

The next segment showed a severe-looking older woman lecturing about the *Langley* from behind a big desk. "Ah," said Hazelton, "here's Isobel."

"Ms. Houghton," came a reporter's voice, "can you tell us in a really short statement why Congressman Hazelton is opposed to the ditch operation?"

The old lady's eyeglasses glittered.

"One, it's the most dangerous for the crew. Two, it's the most dangerous for the environment. Three, it makes the U.S. look like a damn fool. Four, it insults the men of the wing. Five, it casts away opportunities that the *Langley* is uniquely able to fulfill. These, and several other reasons, are why Mr. Hazelton is asking the president to come to Moosefoot before he makes any final decision."

"What about the ice island?"

Ms. Houghton whipped off her glasses to reveal hawklike eyes. "The ice island is the obvious and inevitable landing place. The position we are taking with the White House is that we believe their needs can be accommodated by that solution. We want to discuss that point."

"Good ... excellent," said Hazelton as the network on the center screen cut to the next topic: Alice.

Ms. Frankenheimer, looking much more cheerful than in the afternoon, chattered on about the women of the *Langley*'s crew and how she had gone to Moosefoot to see for herself. She turned to her male, second-banana assistant and said kittenishly, "Well, Jerry, we went to the Muth's and had a really moving and lovely talk with Colonel Muth's younger daughter, Alice. I was really overcome by it all, Jerry. Here's this beautiful, brave child, who loves her father more than anything else in the world, waiting to hear ... well, it was pretty overwhelming ... as we'll see now."

After some moments' delay, they cut away from the mugging pair to the Moosefoot interview film. They used no shot-and-reverse in this, but held Alice's delicate face in a full-on or side-angle shot throughout, occasionally cutting and zooming to a quick close-up of Ms. Frankenheimer during one of her sobbing fits. The Muth living room became absolutely silent as TV Alice explained with a lovely, slightly sad, yet childishly enthusiastic, voice about all the wonderful things her father could do and then how much they all loved him. They cut to a dripping Ms. Frankenheimer, then back to a three-quarter of Alice as she solemnly whipped out her hankie and handed it over.

Congressman Hazelton let his breath out slowly as a wide smile spread across his sly features. He hunched along the couch to Alice and put a large arm around her. "You," he whispered in her ear, "are the biggest, toughest pro in this whole outfit, me included. Bravo, baby!"

Alice, utterly unable to deal with so much praise from her usually irascible uncle, dissolved in tears as the the interview neared its end. TV Alice, now seen from well back, to show that she really was just a little girl, explained with a sweetly melancholy earnestness how her father might lie down by her fresh green grave when she died from consumption. Holding Alice, they shifted the framing to bring Ms. Frankenheimer's teary face in close-up into the edge of the picture,

then cut away back to the studio.

"So you see, Jerry," said a now-beaming anchorperson, "if Colonel Muth is half as good at atomic airplane piloting as he is at bringing up kids, well, Jerry, I don't think America has a thing to worry about."

The TVs were shut off but the brief silence in the living room ended abruptly. "Disgusting!" said Melissa, wrinkling her perfect nose and turning her upper lip into a ski jump. "Tortient! It isn't that Dad loves me any more than he loves the others," simpered Melissa in a devastating good imitiation of Alice's special plaintive quality. "It's just that he'd *kill* himself if anything happened to wonderful little *me*."

"You're just jealous that you can't be Dad's tortient!" shrieked Alice, shrinking against her Uncle Nate and sticking her tongue out. "You couldn't be one, anyway, Miss Bitchy — even if you were the last of a hundred daughters!"

Bob Junior wrinkled his wide forehead in a frown. "Well, it *was* rather thick, Alice. I mean, really...."

Alice sneered at her brother and rubbed her hot eyes. "Well, at least I didn't wee-wee on her leg," she said crossly.

"Cut it out!" said Hazelton angrily to them. "You can't begin to imagine how good that was! Alice had that iron-assed dyke broken in half, right in *half*, kids!"

The phone rang and Congressman Hazelton threw his arm out to sweep in the receiver. "Yes, this is Congressman Hazelton.... That is correct, *I* am Nate Hazelton .... yes.... yes.... Hi there, Shamus. Thank you for getting back, old friend. I appreciate it.... You've decided to come up to Moosefoot? ... Wonderful, about nine tomorrow morning.... We'll be here with bells on, Mr. President, yes sir.... What? ... The Muth girl? Yes, Alice.... Ah, you thought she was a beautiful child ... ah, a beautiful *soul*. Well, it is seldom that you see a child who loves and respects her dad like Alice.... Well, *of course* we found it all very touching, Shamus. In fact, we're all still sitting here trying to recover from seeing it...." Hazelton snapped his fingers impatiently at his sister, who was finally trying some of Stubb's crop, but Betty Lou shook her head.

"You've had all afternoon and evening sucking this stuff, you bum," she hissed. "It'll help me to sleep." And she took another huge toke.

"... The father-daughter thing, Shamus? ... Yes, that *is* quite a beautiful idea.... Well, sir, we'll be looking forward to having you up here. Wonderful thing for the district. Makes us feel we count with the rest of America, way up here ... Yessir. Good night."

Melissa rubbed her hands together and looked at Alice from wider and softer eyes. "I'm sorry I said that, Alice." She spoke in a warm voice. "It was total cornball, what you did, and it worked, and that makes it beauti-

ful." She jumped up and ran over to sit down beside her sister and kiss her cheek. "Just don't get too grown up too quick, baby. There won't be anything left to do when you're twenty."

"Alice will turn on the world when she's twenty," said Nate Hazelton positively. "She's already been made a Hero of Steam by me, and when your dad and I get that shay going on my lumbering property, you'll be at her regulator on the first run, Alice."

Alice, now a focus of approval, admiration, and love, in addition to being recently named a Hero of Steam, took a long and thoughtful toke on Stubb's thickest reefer yet. "Curiouser and curiouser," she said in her best Alice-like voice.

XI

Air Force One came down on the far end of the long Moosefoot runway, and when they had gotten about halfway along to the hangars, the chief pilot turned and spoke laconically to his second. "Check the map again, Bill. I think we're on the Pennsy Turnpike."

"That must be Harrisburg in the far distance," said the second pilot. "Boy, they must really like trees up here."

The big jet finally reached the hangar apron and was directed to the circular area by the main gate. The door opened out, the stairs went down, and President O'Connell stepped onto the platform by the door — to the spirited strains of massed central-school bands trying "Hail to the Chief" — played, he noted, neither better nor worse than by a similar group of bands in South Chicago or at the L.A. Coliseum. "We govern a melting pot," said O' Connell to Happy Jack thoughtfully as he waved at the crowd, "and the same goop comes out the bottom no matter where you turn the tap."

But the president's philosophical mood was soon ended, for at the bottom of the stairway, in front of the massed, brightly dressed bandpersons, stood stern General Beardsley, in his dress uniform with sword, along with Nate Hazelton and the Muth family.

President O'Connell stared at Congressman Hazelton in purest wonderment. Nate had on a ragggedy set of bib overalls, found by Emmeline in a Moosefoot secondhand store, that looked and smelled as though they had been shoveled out of a manure pile; a ripped old L. L. Bean red-and-black hunting shirt; great green war-surplus parachutist's boots; and a floppy straw hat that President O'Connell was certain must have been the same one used by the model for Norman Rockwell's painting of Tom Sawyer. Nate also seemed to be chewing on a long, thick stalk of hay.

"Sorry not to have gotten myself up better for your visit, Shamus," said Hazelton earnestly, "but we've had some problems with the cows that've been keeping me up nights."

For one arrested moment, the presi-

dent imagined himself smiling ever so sweetly at Nate Hazeltom and saying, "What do they need with cows in the discos, brothels, and bondage parlors, Nate?" but he sadly understood that such pleasures had to be given up when one became the president.

"I'd like you to meet Betty Lou Muth, Mr. President, my sister and the wife of the *Langley*'s commander," said Hazelton, pointing his short beard stiffly at the cameras.

The president saw a pretty, sturdy woman in her forties, dressed in spartan, tweed clothes. She stuck out her hand as a man would, catching O'Connell by surprise. "It's an honor to meet you, President O'Connell," she said in a level, emotionless voice. "And this is my younger daughter, Alice," said Mrs. Muth, turning to her right.

The president looked down, smiling, at pretty, smoldering Alice and realized he was staring into a political grave. He had his hand out and ready this time, but no small, answering hand came up to take it. "I won't shake his hand," said Alice in a dark, intense voice that all the wireless mikes could catch, while her large, hot eyes shot fire at O'Connell.

"Alice," said Mrs. Muth in her most modulated tones, stroking her daughter's lovely hair. "This man is Dad's commander in chief. Dad would want you to shake his hand."

Immediately Alice put her hand up and took the president's. "If Dad would want it, I'll do it," she said in a voice that managed to express a silky hatred for the president and unlimited love for Dad.

"Alice," said Shamus O'Connell, deeply panicked, his voice husky as he bent over her, "nobody is going to hurt your father or order him to do anything dangerous...." But he got no further, for Mrs. Muth had his arm and was pulling at him and saying loudly:

"Here are my two older children. Mr. President, Melissa and Bob Junior."

The president turned and was confronted by a quite lovely yet teary face set against a huge buzzed-out hairdo, and next to it a tall young man who, O'Connell noted with a start, looked exactly like a World War II marine.

"I'll shake hands with President O'Connell," said Junior, hooking his left thumb in his belt like Gary Cooper used to and sticking out a big paw. "I figure that anybody that gets to be president has to be plenty smart." Bob Junior pursed his lips. "He'll know what to do with the *Langley*...." He poked one huge foot into the dust and rubbed it around shyly, the way John Wayne did in *Stagecoach* when he talked to Claire Trevor. "... soon as he's learned all there is to know about what she can do."

President O'Connell surrendered his hand to Junior's crushing grip. He felt utterly alone, surrounded by land mines named Alice Muth. He looked Junior in the eye. O.K., sonny, he thought, you people are trying to ruin

me up here. What in hell do you want?

Bob Junior smiled easily and ran his palm over his brush cut. "Well, Mr. President, the thing is no good as a bombing plane." He grinned at the cameras. "Anybody knows that. But it can fly anywhere and over any distance. Dad always said the best thing it could do was to fly right around the world, nonstop, over the poles and the oceans. Turn it into a goodwill flight, he said, a trip to show everyone how small the world really is and how much we're all tied together. Dad said it would be the last and greatest effort of aeronautics, a transpolar, nonstop flight around the earth."

President O'Connell looked into Bob Junior's earnest young face and suddenly saw what it was they were trying to sell him. The political abyss that had gaped at his feet slid soundlessly shut, and — best of all, he thought exultantly — he would beat those fucking hawks and troublemakers over Ice Island Three! Ideas bloomed in his head. He put his arm around Bob Junior's big shoulders. "General Beardsley," he said sternly to the man still stiffly at attention in front of them.

"Yes, Mr. President," said Beardsley, staring fiercely straight ahead.

"You heard what Bob Junior said. Is it possible? Can the *Langley* fly around the world?"

"Yes, sir," said Beardsley. "All the aircraft are stocked for a two-week mission. We can circle the globe twice if you wish, sir."

"Once will be fine," said O'Connell dryly. "Now, I want us hooked into the *Langley* from right here, General. Is that possible? Can we transmit the same picture to them that the public is getting?"

General Beardsley relaxed a bit and gestured to his staff. "We'll have that ready in a minute, sir. And we'll need to get a monitor out here so you people can see them on board the *Langley*."

In a few minutes a big screen had been brought out in front of President O'Connell and the Muths, and after some fussing and adjustment, the *Langley*'s flight office cameras showed a wide-angle view of both Colonel Muth and Captain Jackson, now sitting at attention.

Shamus O'Connell was feeling better second by second, and when he saw that the *Langley*'s copilot was a black, he beamed a vast smile at the cameras pointing at him and saw the two men smile back. "Colonel Muth, Captain...." He looked quickly at a note in his hand. "... Jackson. Gentlemen, do you recognize me as your commander in chief?"

"Yes, Mr. President," they answered in unison. O'Connell shone expansively at the big screen and tossed his white mane to show his enthusiasm. He was filled with ideas.

"I've decided, gentlemen," he said to them, "that my next order to the *Langley* will be given by my appointed deputy...." He looked quickly around.

"... Melissa Muth." President O'Connell put a fatherly arm around Melissa's slim waist. "You haven't said much, my dear," he said to her. "So why don't you be the one to order your father to do what Bob Junior suggested."

Melissa's beautiful gray eyes looked steadily out of the goop and the beehive hair. "Hi, Dad," she said in an easy, cool voice. "Listen, the takeoff was really sensational. Hi, Gaby."

"Hi, Melissa," said Captain Jackson with a shy grin. "Hey, your idea as to why that spline on the valve gear broke was right. The cam follower was jumping...."

President O'Connell cleared his throat and gave Melissa another fatherly squeeze. "Perhaps we should get to the orders, dear," he said in her ear. "Then you can go on with your consultations later."

Melissa poked back a long, springlike strand of hair and grinned a wide, yummy grin at the cameras. "Dad," she said, drawing herself up to a kind of relaxed and sinuous attention, "almost a hundred years ago, a young woman reporter for the *New York World* named Nellie Bly went around the world by steam traction and steam shipping in less than eighty days, to show it was possible after Jules Verne wrote his novel. Acting on behalf of the president of the United States, I order you, Dad and the crew of the *Langley*, to attempt a transpolar circumnavigation of the globe, again by steam, but now in *eighty hours!*"

Melissa Muth stood tall, staring out at the cameras, and all over America, other young women stood tall at their sinks and in their plastic hairdos and imagined themselves sternly ordering *their* fathers, brothers, or husbands to do something exciting and historic.

President O'Connell would have smiled even more widely, if that were still possible. These Muths were making this all so easy, he exulted to himself. They've figured the whole scam out to the final crossing of the *t*'s. Jesus, he thought, Nellie Bly, Jules Verne, eighty days, and eighty hours ... beautiful!

The nation watched handsome Bob Muth turn and grin easily at his dark, serious copilot. "Well, Captain Jackson, what do you think? Can we do that?"

George Abraham Jackson set his jaw the way he imagined Fred Marriott probably did when he climbed into the little racer, then nodded. "I think she'll do it, Colonel. Steam Bird is singing to us now!"

Colonel Muth smiled at his daughter from the screen. "We'll be over the pole in three hours, Meliss. We acknowledge your orders and will carry them out to the very best of our abilities." He paused, then: "Oh, and you guys help Mom while I'm traveling, O.K.?"

Much as he would have liked to keep this warm family scene going, President O'Connell well knew the

short attention span of the electorate. "To bring this to a close, ladies and gentlemen" — and he bowed slightly right and left — "I think the last word should belong to...." And the president went down on one knee, peering and grinning around Betty Lou Muth's legs, "Alice!"

Alice smiled back most warmly at the president, and O'Connell hitched forward with knee and foot to put an arm around her shoulders and bask in that sweet glow. The cameras zoomed in.

"Dad," said Alice to the cameras, and now her face had a thoughtful, ethereal cast. "I think Nellie Bly is up there with you now. And all the old aviators ... and the steam men, too. They're all blessing you and the *Langley*. And they'll be riding with you, all the way around the world."

President O'Connell blinked and gave Alice another hug. "What lovely, gentle thoughts you have, Alice," he said in a thick voice. "You really are a remarkable child...."

But Alice suddenly decided she had gone on quite far enough with the P. T. Barnum stuff, and she gave President O'Connell a smile from the *real* Alice Muth — perky, full of jokes and hokum, eyes sparkling with mischief — and she seized the president in a bear hug and planted a big, wet smack on his lips. "I *really* think you're nice," she said, grinning. "You're like Uncle Nate!"

And it was strange, but of the many accolades and honors that President Shamus O'Connell had received over a long, rich, and active life, there were few, if any, that meant more than that frank acknowledgment of his political competence by twelve-year-old and fellow politician Alice Muth.

The tour of the Moosefoot facility was pressed along at maximum speed, and the president had to admit as he looked at the *Langley*'s sister craft, the *Sir Hiram Maxim*, that things up in Moosefoot had certainly gotten out of hand. "Jack," he said in an awed voice, "that thing wouldn't need to explode. A crash would set off an earthquake." He stood in the middle of the vast array of huge, mushed tires trying to imagine the craft lifting in flight, but Jack made no response. He spoke not one word at Moosefoot, just walked about shaking his head like a dour undertaker at a cheap funeral.

They were able to climb back into *Air Force One* just about at noon and retire at once to the president's small private bar at the aircraft's stern.

President O'Connell, feeling more relaxed than he could remember, carefully selected two springwater ice cubes and dropped them in the large crystal glass. Then the Jack Daniels. He carefully studied the brown fluid, noting how the melting ice cubes patterned the brown whiskey next to the cold cubes. "Boy, do I deserve this," he said with a happy sigh, knocking back half the glass in a single gulp.

But Happy Jack still frowned his

wrinkled, disgruntled look. "Oh, you were fine after you got the Muth kids on your side, Shamus. How could you help it? Jesus, those little bastards had everything taped. Of course Hazelton coached them. Shit!"

The president grinned at his aide. "Jack, Jack! Don't you see it yet? They worked it all out for us: the *Langley*, the ice island, the works!"

"Yeah," said Happy Jack bitterly. "We're absolutely up a creek on the ice island, Shamus. How the hell can we deny the thing to the military after it's been made a nine-day wonder by the *Langley*? And the Russians have us by the balls. It is ice!"

It wasn't often that Shamus O'Connell got ahead of Jack, and he was in no hurry to end the fun. "So," said the president thoughtfully, "you'd say, suppress publicity on the flight? Keep the press away from the landing with a secrecy order? Keep mum?"

Happy Jack shrugged. "Try and do it after little Miss Nellie Bly and Jules Verne and whatever new bullshit they come up with," he said sourly. "Look at this *Times* head, Shamus. 'Steam Bird Almost Over the Pole.' Steam Bird! Jesus, who would guess that such a hotbed of kooks could be hatching their eggs in Moosefoot, Maine, for goodness sake!"

The president poured his aide a drink, identical to his own, and put the glass in direct contact with Happy Jack's clenched fist. "Drink that quietly and soberly, Jack," said Shamus O'Connell, grinning, "for the sun is over the yardarm and all is right with the world."

He put up a finger. "This isn't an Air Force saberrattle anymore, Jack. It's a goodwill mission and record attempt. You heard the young man. Now, Jack, goodwill missions do not end in the annexation of provocative and destabilizing bomber bases. I mean, even the Soviets in their hardest-edged moments would never try and pull that kind of stunt. So we've already chopped a good part of the limb out from under Zinkowski and the missile and aerospace senators."

The president mixed another drink and grinned. "O.K., the landing is a big deal on Ice Island Three, right? Wire services, direct TV link, the works. Now — and stay with me, Jack," said the president, waving his finger again. "After this great thing is ended, what do I announce about the *Langley* and Ice Island Three? Jack, there's only one thing we can do with them. Hell, the *Langley* can't be put in the Smithsonian."

"It's bigger than the Smithsonian Shamus."

"Right. Also, it's hotter than hell. So what to do? Well, the *Langley* can be stored permanently on Ice Island Three at almost no expense. We dig a hole and the ice shields the hot reactor. We know the island is permanent, so the thing can stay up there in the freezer forever. Now, we need our airport there to have access, to caretake

this great historic treasure, right? There might even be air tours out of Alaska so some of those steam weirdos can come up and walk inside the shielded part of the *Langley* and look at the damn huge thing. So we have to run the airport, since it's our treasure we're looking after, but otherwise we announce that the U.N. can operate the place. Furthermore — get this, Jack — in memory of all the long-distance flyers who have been lost in the Arctic, Langley Ice Field will be open to assist *all* aircraft in trouble at the pole. How about that, baby? The Russians can't touch it because our big toy is permanently up there, and there's no way Professor Busy-Nasty and the cutlass-in-the-teeth crowd start cramming nuclear bombers into a new shrine to American technology that is open to the world of steam and any other nuttos who get excited over really big things. The place will be neutralized as long as the *Langley* stays hot. Ice Island Three and the *Langley* deserve each other, Jack. We're just going to officiate at the wedding."

And now it was finally possible to see how Happy Jack's name came about, for the lines and wrinkles of his face dissolved and restructured themselves, changing him from a sour, wizened parish priest listening in contempt and shock to the world's duplicity in a confessional, to a sprightly old leprechaun, waking in a bed of shamrocks to find the buttercups swaying over him. "You saw all that with those Muth children, eh, Shamus?" said Happy Jack, chuckling and shaking his head. "Well, I've always said that the only thing that saves the Republic is that thieves are either unable to combine, or else they eventually fall out. Imagine Zinkowski, Busy-Nasty, and those kids in one big package. Why, we'd be attacking Moscow right now!" He sipped his drink grinning, but his smile was thoughtful. "If the island is open to everyone, what about Soviet bombers?"

Shamus O'Connell winked. "Well, Jack, where would you rather have a Soviet bomber: sitting on the ice island while we try to find it gas and parts, or attacking Seattle?" The president sighed contentedly. "The great game. Kipling said it. And it's fun to win, Jack!"

Jack Hanrahan slapped his well-tailored knee and broke into a long, bright laugh that would not have disgraced the King of the Fairies himself. "Game, Shamus!" he said, wiping his eyes, now bubbling over with mirth. "This is no chess game, sweetie! This is governing a gigantic mental institution using the methods of street theater! Last month the defecting Bulgarian ballet troupe at the airport. This month Alice Muth, Dad, and the *Langley*, your friendly, flying nuclear terror. Next month...."

Now President O'Connell chuckled. "Next month, Jack, since they won't get the ice island, we face the so-called racetrack missile system with the big trucks...." President O'Connell

paused and swished some whiskey around in his mouth to help in catching hold of a random thought. "Jack, those missile trucks. Are there, well, *truck freaks?* You know, people who might want to build the largest trucks or pull the largest loads...?"

But Happy Jack was not going to darken a moment that had turned so sunny. "We've got to live this one day at a time, Shamus," he said, relaxing back in his seat. "Let's enjoy Steam Bird's flight along with everyone else."

"Steam Bird," said the president, shaking his head. "I can understand sex, straight and kinky, booze, drugs, cruises to other lands, Miami condos, fast cars, the thousand-dollar window at Churchill Downs, roller discos, all that stuff. But Jack ... *steam?*"

Congressmen Hazelton and the Muths arrived back at the Moosefoot house in a state of noisy elation to find that Stubb, a lifelong if nonvoting Republican, had missed the President to smoke and cook up his own special doughnuts in the Muths' deep-fat pot, so that mounds of coarse-sugared, weirdly shaped doughnuts covered the dining table. It took no time for them to brew up some cocoa and coffee, joining Stubb for a few more tokes, and sit down to a stoned doughnut glut.

Nate Hazelton, who had changed out of his costume, dusted the thick sugar crystals from his silk vest and beamed at the children. "Well, you all know how good you were. I don't need to tell you that," he said heartily. He turned to his sister. "I told you Shamus would work it out. Junior and Melissa made him an offer he simply couldn't refuse."

"But Dad still has to land it, Uncle Nate," said practical Alice. "It's monstrous! It's going to come down fast!"

"Bob will do it, and we'll be there to watch, my friends," said Hazelton. "Shamus has offered to take us up with him on *Air Force One* when they make the landing on the ice island. He's finally realized that the whole steam and around-the-world thing can be used to deny the Pentagon the ice island. Let's face it, this is fun for us, but it's also going to keep the world from blowing apart for a few months longer."

Bob Junior chewed angrily on his doughnut. "They're always trying to stir things up in Washington, Uncle Nate," he said in a bitter voice.

Hazelton shrugged. "Our hobby happens to be steam. Their hobby is mass murder. Believe me, with friends like the Pentagon and the Joint Chiefs, you don't need enemies!"

But these somber thoughts were instantly dispersed by the arrival of Emmeline from upstairs, fetchingly — indeed, spectacularly — dressed in a wonderfully tight set of loco engineer's overalls and a jaunty, blue-striped runner's cap bearing the Tidewater Northern distinctive logo, a dollar sign rampant on a loco chimney.

"Emmeline?" said Hazelton in astonishment. "It's lovely, but what are you going to do, dear? The corn is all picked up here now."

Melissa peered sternly at her uncle. "Emmeline wants to run an engine on the Tidewater Northern, and I'm going to show her how," she said in a firm, no-nonsense voice. "Emmeline and I can double-head the division peddler freight, then break the train at Bridgeton and give it two numbers. Emmeline will drill the Beaver Dam branch while I sort the cars for the Bridgeton yard." She looked around. "Anyone who wants to come and be yardmaster and div. super is welcome."

Hazelton stared at the two denim pockets on Emmeline's blue-striped bib, which had the size and solidity of large cantaloupes. "Will she be able to see the throttle, Melissa?" said Hazelton in a doubtful voice.

Stubb Moody who had been staring bug-eyed at Emmeline and licking his lips, now grinned and slapped his knee. "Dang me!" he said. "If they had enjine drivers like thet on the Bangor and Aroostock, I'd be workin' on thet railroad tuday!"

Melissa stamped her foot in anger. "She can just sit back a little, Uncle Nate! Now you cut that out! It's really absolutely disgusting how completely and totally sexist this family can get. C'mon, Emmeline. We'll go and run the peddler."

Emmeline followed Melissa to the stairs, then turned to give everyone a big smile and to wave the tips of her soft pink fingers back at them.

Congressman Hazelton smiled fondly after his secretary and sighed. "If Emmeline catches the bug, I'll have to take her to the steam meets." He tried to imagine Emmeline chatting about the details of Caprotti valve-gear linkages, but the vision utterly escaped him. "Alice," he said to his niece as he got to his feet, "I will be the Tidewater yardmaster and you can be the switchman ... er, switchperson, at Bridgeton. And if Emmeline gets her train up to Beaver Dam, I may take everyone out to dinner."

XII

The *Langley* crossed the North Pole, and Colonel Muth notified General Beardsley that the mission had begun. The aircraft now ran with port and starboard watches, like a ship, with Colonel Muth and Captain Jackson in charge of the respective watch standers. The White House had decided to send them south over the Pacific, so that the ending of the trip would involve the flight north up between Europe and the East Coast of the U.S.

They started their long run south, making their closest approach to the Soviet Union as they passed over the Bering Strait, then the Aleutians and out over the Pacific. They passed Japan several hundred miles to the east. White House thinkers had wor-

ried over the *Langley*, an atomic airplane, passing close to the only nation ever attacked by atomic weapons, but dozens of planes still went out to see the gigantic machine go by, and the price of seats on commercial sightseeing charters went to many thousands of yen. Indeed, the various Japanese chapters of the Brotherhood of Live Steamers accounted for two 747s full, and many more were turned away.

Several aircraft carriers, including the huge *Maxim Gorky*, managed to get themselves near or under the *Langley* when she went by overhead and to fly an honor guard of jets to accompany her for a few hundred miles. The aerobatics team from the *Gorky* went one better and did several spectacular stunts with the *Langley* as a kind of centerpiece. Their final turn consisted of six aircraft in line astern making a huge, vertical circle well ahead of the *Langley*, then turning on the colored smoke and spiraling in, one at a time, and finally shooting straight out at Mach 2 on their afterburners as they each made a giant roll. The effect put the atomic plane at the center of a gigantic, colored spiral dish or target from which it entered a tunnel of smoke.

"As street theater goes," said Shamus O'Connell to Jack Hanrahan as they watched the TV shots of all this, "we're packing them in. Let's hope the colonel can land that damn thing."

Happy Jack frowned. "Jesus, Shamus, could he actually blow up in front of his own kids?"

The president shook his head thoughtfully. "Jack, I've been looking through those damn, idiot books. You wouldn't believe all that's in there! If the plane should take a dive on the landing and dump out the reactor, *we're* the ones most likely to be crisped or zapped. You see, for the thing to come loose, the *Langley* will be more or less stopped, you know, crashed. They estimate the reactor would have to roll several hundred yards farther on before it collapsed enough to detonate, which is likely to be in the middle of Ice Island Three. The crew is probably O.K., assuming they weathered the crash, since they're in a heavily protected and shielded cabin. It's the people out on the field that have to stand the gaff."

"Shit," said Happy Jack. "The Secret Service will be pissing in their diapers about that."

"They already have," answered O'Connell, "but they also actually have a plan. We'll watch her come in from an ice trench with that crazy Moosefoot general, that fellow Beardsley. He'll decide if the *Langley* has, or is about to, dump her bloody abortion on the ice. We then have about fifty seconds to go rapidly down into a shelter directly below the trench. Everybody on the island will go into the shelters in an emergency, except the men in the two shielded crash trucks. They'll get the crew out and bring them down. We'll have the press

planes and *Air Force One* circling way back up out of harm's way. They're getting it all dug up now. The problem is that since this isn't a bomb they designed, it could be pretty dirty and keep us in the shelters for a couple of days."

Happy Jack leaned back and ground his teeth. "One thing after another! But you've got to be up there, Shamus. The chances are that they'll get down O.K. and you can make your proclamation right out there on the ice in your parka, after you decorate that gang of raving cuckoos. Then we can disband Moosefoot AFB and forget about Ice Island Three ... for twenty thousand years, anyway."

"Oh, I think Muth will do it, all right, Jack. Good grief, look at that family. If he can deal with all of that — and Nate Hazelton, too — hell, the *Langley*'s just one more weird trip."

After another large escort from Australian and New Zealand air fleets, the *Langley* passed over the South Pole and paused to make one huge circle, dropping a hardwood wreath carved with the names of all the explorers who had perished in these regions. This ceremony was photographed from a long-distance chase copter of the chopper carrier *Norton Bank*, flying far below the atomic airplane. The little red, white, and blue chute with the large wooden wreath hanging below popped open in the cold air, and as the memento drifted down on the totally empty ice and the huge, distant *Langley* continued its wide, graceful circle, the black names came slowly down across the TV screen, starting with Sir Robert Scott.

"Ah," said Hazelton, unbuttoning his coat and settling back, "this has certainly been a classy flight." He turned to his sister. "Bob thought up the wreath bit. End of the age of exploration, all that stuff."

"Well, it's very easy to play the con man, Nate," said Betty Lou, frowning and blinking at the screen. She had found the stark image of the vast circle of ice, the distant plane in its gentle arc, and the names marching down the screen — not just Knights and Gentlemen of the King, but Seamen and Dog-drivers, Sergeant-gunners and plain Misters — quite moving and appropriate. "You know, Nate," she said, "if our children looked up to those good, brave men instead of to the rock freaks, egomanaics, and disco-trippers, we might have one tiny prayer for some kind of decent future."

Nate Hazelton sipped his scotch and pondered. Finally, he shook his head. "It's a great idea, Lou, but it didn't really work. All that stiff-upper-lip shit. Sacrificing to reach the pole no matter what. It all just delivered a generation of them to the trenches." Hazelton squeezed his sister's arm. "But the *idea* of some interesting and worthwhile goal is good, Lou. That has to be good. We just can't seem to hit on the right combination."

"I think steam is the answer," came a positive voice from a dark corner, for Alice had crept silently in to watch the *Langley* drop the wooden wreath.

"Ah," said the congressman in surprise. "A planner in our midst, I see and hear. Do we have everybody dig coal and pound spikes for the steam locos, Alice? There'd be precious few driver's jobs and a tremendous number of diggers and pounders."

"You have to get everybody *interested* in steam first," said Alice. "Then people would work on the railways as a hobby, and eventually they would work enough to let them drive a train, instead of getting wages."

"What do they do for food and shelter, Alice, when they aren't actually driving?" asked Nate.

Alice wrinkled her nose. "Nobody works much anymore, Uncle Nate. And running trains does get people places, so the government could just give them the food and let them live in some old army camp. There's millions of them around."

"You see, Lou," said Hazelton, looking fierce over his glasses, "she admits to being a rail fan and steam freak, Your Honor, but in fact the child is a raving socialist, freebie-commune, barter-society left-winger."

Betty Lou Muth wiped her eyes over the last name, that of Captain Oates of the Iniskilling Dragoons, who walked away from Scotty's party at night to die and not risk their safety. Then she drained her scotch and shrugged. "Well, she's probably right, Nate. Nobody works very much. Nothing works very good. So what's wrong with letting a bunch of harmless neurotics run replica *Flying Scotsman* trains of Gresley teak coaches at one hundred miles an hour and live off surplus food in Quonset huts? Could they possibly do any worse than the fools running the railways now, Nate? And it would *have* to be cheaper!"

The *Langley* passed north over the South Atlantic without special incident, but at the latitude of Washington, D.C., the huge atomic carrier *Richard M. Nixon* waited impatiently with its own aerobatics team. They had spent two days looking at the TV tapes of the *Gorky*'s effort and practicing their own goodies; so the show, now involving eight aircraft, was spectacular, with the *Langley* serving as the centerpiece of smoke flower-bunches, pinwheels, and assorted woven, colored-yarn effects. The most impressive stunt was, in fact, one of the simplest. The navy jets, with their flaps partly down, bunched in two groups of four each and flew about a quarter-mile ahead of the *Langley*, so close together that their wings overlapped one above the other. On signal, each group let loose a heavy dose of colored smoke, each plane in the group squirting a different color. The four smoke plumes, staying in four relatively separate vortices, entered the five huge fan entrances on each side of the *Langley*. The position of the smoke

from each jet had been figured out so that when the big fans blew the smoke through the condensers and out the entire rear edge of the *Langley*'s wing, two gigantic smoke rainbows were formed, the red smoke being the farthest out toward the tips, blending with the yellow to make a smear of orange, then green and violet blending to make blue. For several moments the *Langley*'s two entire wings spun out a complete rainbow of smoke on each side, and the two colored ribbons blew backward and finally united far behind the vast machine.

Watching from *Air Force One*, President O'Connell slapped Happy Jack on the back and chuckled. "Look at that, Jack. Our boys can outfly, outshoot, and outfuck the Russkies anytime!"

"There are damn few political problems that are solved by flying, shooting, and fucking," said Jack irritably.

"Professor Busy-Nasty wouldn't agree with that, Jack. His whole idea is to roll your eyes, grit your teeth, then drop your pants."

Jack snorted. "Busy-Nasty! A fuck would turn him into a pumpkin, all right! Shamus, if they had queers on Mars, they'd have to look like the professor."

"Steady, Jack," said O'Connell, looking furtively around the big central cabin. "The gays vote ... like the eco-weirdos, remember?"

"It's all the same bunch," said Jack. "What this administration needs is a federally supported public-rest-room program, warm places where people can make friends unmolested ... and that use recycled toilet paper and towels plus soap made from vegetable fats."

"Sotto voce, Jack!" said O'Connell again, darting glances around. "They're everywhere, you know. Waiting to catch us using words like *fag* and *fruit*.... Ah, the navy boys are all done, and off we go to Moosefoot."

"Dinner with the Muths," said Happy Jack with a twisted smile. "Dinner with the P.L.O. and the Provo I.R.A.'s would make more sense, and probably be safer."

President O'Connell gave Jack a grin. "Jack, the Muths are international celebrities, as well as being the most down-home folks since Harry and Bess Truman. Colonel Muth has already been awarded more decorations from countries he's gone past than anyone else, including three from Iron Curtain air forces."

"You going to let him take those?"

"You bet we are, Jack. This is a goodwill flight to knit us all together, remember? And I understand that we'll have a chance to see and even operate Colonel Muth's remarkable railroad, one the most electronically advanced in the country — anyway, according to Alice Muth, who talked to Dave this morning."

"Railroad?" said Happy Jack incredulously. "The son of a bitch owns

a ... oh, you mean the hobby toys?"

"No, no, Jack," said Shamus O'Connell. "A model. It works exactly like the real thing. The electronics make the little engines run exactly like the real ones — at least that's what the child told Dave."

"Well, if you try something like that, you'll just make a damn fool of yourself in front of the press."

O'Connell shrugged. "If a twelve-year-old can do it, and Nate Hazelton can do it, I sure as hell can do it, too."

The press was excluded from the actual spaghetti dinner at the Muths, so that the president could speak frankly with these typical citizens without fear of instant quoting. Extra leaves had been put in the dining room table and extra tables put in the closed-off living room for the press and Secret Service people. In spite of some White House press output, very little — in fact, nothing at all — was said at dinner about the debt, abortion, Washington's insensitivity or Proposition Thirteen. Instead, things seemed to center about what General Beardsley had earlier called "the world of steam."

After a brief grace and prayer for the *Langley* by Betty Lou, the president lifted his head and blinked, for he was seated across from Nate and Emmeline, once again resplendent in her Tidewater Northern driver's uniform. He cleared his throat. "Well, Nate, it certainly looks like Miss Pangini is ready to drive a train."

Congressman Hazelton shot out his most genial smile. "Emmeline is a recent convert to railways, Shamus. Melissa showed her how to run the peddler and drill the Beaver Dam branch, and she's been at it ever since. A rail nut if I ever saw one."

"Ah," said Shamus O'Connell, radiating cheefulness in every direction and focusing his gaze on Emmeline's bursting pockets. "Well, I can see there's much more to this steam business than I imagined."

"Drill the Beaver branch?" said Happy Jack absently, his eyes also riveted on Emmeline.

Nate Hazelton chuckled. "Emmeline drove a freight train up the branch line to the Beaver Dam end, Mr. Hanrahan. In fact, that would be a good way for you to start, Mr. President."

"You've *got* to do it," said Alice positively to O'Connell. "The man on the phone said you would."

But Shamus O'Connell had no intention of *not* running the Muths' toy trains. "Can I wear a hat like that, Alice?" asked O'Connell, pointing at Emmeline's head. "And can Miss Pangini ... May I call you Emmeline, dear, since we're going to be engineers together? ... run the other train with me?"

"We'll get you dressed up right, Shamus," said Nate at once. "You're big. You can get into Bob's outfit. How about it, Emmeline? Want to double-head the peddler with the president?"

Emmeline colored prettily and nodded, smiling sweetly and tilting her head. Shamus O'Connell beamed some more and helped himself to spaghetti. When the conversation shifted briefly away from him, he leaned over to whisper in Jack's ear. "Jack, is our photo man here with the wire-service people?"

Happy Jack nodded. "Right. There's Fogarty and the two pool men. We're limited by the Muths to three photo people down cellar, what with the Secret Service and the rest."

"O.K.," said O'Connell, "see if Fogarty can possibly get me and Emmeline playing trains together, from at least the waist up — Emmeline in front, my profile just behind. You see it, Jack?"

Happy Jack's wrinkles transmuted into his best leprechaun grin. "Four by six feet I see it, on the walls of the labor precincts I see it ... you bet I see it, Shamus!"

O'Connell beamed and beamed as he let his eyes linger on Emmeline. "It won't matter what we write underneath. They can cut that off. But I'll be right up there next to Emmeline. Be sure we both have those hats on. And Jack, tell Fogarty that the picture has to clearly show *Emmeline instructing me* in running the thing, right? Young railroad enthusiast shows the president how to run her advanced electronic train set is the message. We don't want any flat-chested, and possibly militant, ladies to think we're exploiting any particular physical portion of Emmeline for some nefarious male purpose." O'Connell chuckled quietly.

The operating session was a great success, even though the narrow-gauge roundhouse did get scrunched by a clambering photographer. Emmeline guided the president with her pink, gentle fingertips through his first drilling of the Beaver Dam branch, and the resulting pictures became, two years later, a sensation in the reelection campaign.

It wasn't long before President O'Connell was driving the Dixie Flyer at over ninety, and he and Alice were deterred from having a final try with one of the big coal drags up Sherman Hill only by an aide's whispering in the president's ear, "Sir, if we're going to get to the pole with the *Langley*, we've got to go at once."

O'Connell sighed. "Ladies and gentlemen," he said loudly. "We must adjourn to *Air Force One*. The *Langley* will be reaching the pole in the morning."

The layout was shut down, and everybody went clumping up the wide stairs, Alice and the president chatting amiably as they climbed.

"And you say the *Morning Hi* went between Chicago and the Twin Cities at over eighty, Alice?" asked recent convert to steam, Shamus O'Connell.

"The fastest steam-hauled service in the world," answered Alice positively. "President O'Connell, why can't the railroads do things like that now?"

The president turned his head and saw Jack coming up behind them. "Why is it we can't build and run decent railroads anymore, Jack?" he said in a plaintive voice.

"Why should the railroads be any exception?" answered Jack, shrugging in surprise.

"If we went back to steamers," said Alice excitedly, "we could use American coal, and everybody who wanted could learn to drive or fire, and...."

The president sadly shook his head, then took Alice's hand and squeezed it. "They'd *never* let us do it, Alice: EPA, NOAH, NIOSH, NIH, Commerce, Labor, the clean-air societies, the UAW, the noise-pollution people, the Teamsters, the Railway Brotherhoods, Exxon, the...."

"But, you're the *president?*" said a bewildered Alice. "If *you* can't do anything...."

The child and the man stared at each other for an instant in a kind of complete and shared comprehension, and Alice shivered.

"Alice," said Shamus O'Connell, warmly putting a hand to her cheek, "you see, dear, we have to get through each day...." But then he stopped and gave her a large smile. "It isn't a compartment on the Broadway Limited, but you can sleep in a berth on *Air Force One*, and then, tomorrow, your dad will be back on the ground. Think of that!"

Alice cheered up at once. "And then, after you boot Dad and the rest out of the Air Force, we'll get Uncle Nate's shay fixed up and in steam." She clapped her hands. "And it has the loveliest whistle!"

The *Langley* crossed over the North Pole for the second time just a few minutes less than eighty hours after the first crossing, to the accolades of the world, then headed south again to her landing at the ice island. *Air Force One* left the pole and scooted on ahead to the island so as to disembark her passengers and get back into the air before the *Langley* showed up.

Halfway down the runway were a series of slit trenches, set well back, and leading down to rapidly assembled blast and fallout shelters in case the landing turned sour.

In fact, the only things visible on the gigantic platter of ice were the few, now-empty Quonset huts for the permanent staff, a small, prefab control tower, and the two shielded crash trucks that had been flown up from Moosefoot in two straining Hercules cargo jets.

The Muths and President O'Connell's party were all bundled up in army-issue fur parkas and O.D. wool mittens, but the day was calm and bright, a modest north wind blowing almost along the runway, and the temperature only at about zero. They all stood, stamping and beating their hands and peeking nervously over the edge of the ice, when a cry went up from the adjacent TV and reporter

trench: "She's coming!"

Sure enough, way out to the south they could see the gigantic and distant *Langley* making a wide turn to start her downwind leg. She flew parallel to them, then banked and turned again, still miles away, lining up for her final landing run. As she came ever closer, her black shape grew, but the day was still quiet. The *Langley*'s engine noise was no more than that of a steady gale flowing through a forest of hissing trees.

The wire-service and pool men watched with growing apprehension as the gigantic wings thickened and spread. "Damn! It looks like the *Hindenburg*," said the A.P. stringer, an older man, "but going sideways!"

The young fellow from Reuters turned and grinned. "Have you by any chance heard of the phenomenon of 'roll-up'?" he asked innocently.

"Very funny," grumbled the older man. "You don't have a wife and kids to worry about."

"At least you've *got* kids, my friend," said the other. "If this thing blows up dirty .... Hey, look at that!"

Everyone stared through their binoculars as Sergeant Stewart began to lower the acres of undercarriage spiders, wheel-tier by wheel-tier.

Colonel Muth, now carefully watching both the flight and reactor instruments, began to break his glide. "O.K., Harry," he said to Major Fisk. "Stage Two. Reverse the fans, now!" Fisk pressed the transfer switches to send steam through the ten alternate turbine runners, set to drive the fans in the opposite direction. At first these machines fought the steam, for they had to dissipate the huge rotary momentum of the big fan blades. Fisk watched the condenser temperatures rising like a rocket, but he continued to cram steam through the reactor.

"Blades are coming up to stop, Bob," said Major Fisk. The long white runway now stretched ahead, and they were still doing well over a hundred miles an hour. Colonel Muth watched the condenser steam pressure indications shooting up, for now the air to cool the steam came entirely from the *Langley*'s forward motion.

"We've got to start the bleed, Bob. She's gonna pop!" said Fisk in a tense voice.

"Do it now!" said Muth, and the *Langley* went onto open cycle, the steam blowing back out of the aircraft in spectacular giant plumes that deflected off the nearby runway and produced instant pools of water wherever they touched the ground.

"Bob, we're not getting enough reverse fan acceleration! We're going to run out of water!" hissed Gaby Jackson, whose landing responsibilities included projecting condenser activity, fan reversal, and water loss, moment to moment.

"Major Fisk," said a grim Bob Muth at once, "windmill turbines one, three, five, six, eight, and ten! Give the other four absolute full reverse! Let's see if

we can use parts of the condensers to feed them!"

"Right!" said Fisk, busily cross-connecting condenser and turbine systems. Now four of the turbines received plenty of steam and spun more rapidly toward full reverse.

President O'Connell, suddenly gaping and growing cold at the huge cloud appearing magically below the *Langley*, now saw this diminish. Yet the plane did not seem to be going much slower. "Well, General," he said in a hard, tense voice, "Now what?"

General Beardsley peered through a set of huge binoculars and licked his dry lips. "He's apparently decided to perform the reversal in groups, instead of all at once. That way, part of the condenser system can serve part of the turbine group."

The air rushing past the windmilling fans condensed the steam for those now running in reverse. Bob Muth held his glide as long as he dared, then finally began to flare the *Langley*. He spoke grimly to Sergeant Stewart. "We've got to start touching here, Jim, fans or no. Talk me in, baby!"

In his undercarriage office, Sergeant Stewart watched the hydraulic gauges for the first sign of contact. "Hold her level, Bob. Steady ... O.K., first touch aft. We're talking about 2 percent now. She's rocking a bit, Bob, watch it! Port wing is heavy."

While they gradually dropped each set of wheels down on the ice, Major Fisk, his undershirt sopping wet under his coveralls, finally got the first four reverse turbines fully up to speed. "Bob, they're in full reverse. Shall I try four more?"

"No time for that," said Muth quickly. "Put the rest on line, now! If we pop a condenser seam or two at this point, it won't matter!"

"Second tier bearing," said Stewart. "Drop her nose a degree, Bob. The back wheels are a bit over 100 percent. Steady, down slow, Bob...."

"Condenser is over twice its design pressure now," said a tense Major Fisk. "Spin, you bastards!" he gritted.

And spin they did. The more rapidly the other six fans went into reverse, the more steam the condensers could handle. The condenser pressure-excursion peaked terrifyingly at over three times the maximum design pressure, but when Bob Muth saw that it *was* the peak and that all the condenser parts had begun to fully function in reverse, he knew they had finally mastered the beast and could stop her.

"Over 60 percent of load on the wheels now, Bob," said Stewart. "She's settling nice. One more degree now. Watch that starboard tilt ... Steady...."

Major Fisk ran the reactor back up to full power, and they could feel the reverse thrust now acting to slow the *Langley*.

"You want to park her any place special," said Major Fisk, wiping his face and grinning at his assistants.

Colonel Muth looked out at the ice island ahead. "I think we should run

her abreast of the hole they're making, Harry," he said. "No point in making them tow Steam Bird four miles."

As the *Langley* gradually decelerated, she was accompanied by the two shielded crash trucks, one on each side, rumbling along with the people behind the thick lead glass excitedly waving and shoving their thumbs up.

They finally rolled quietly to a stop, and Colonel Muth took a deep breath. "Gentlemen, mission complete. Cold shutdown, if you please." He felt suddenly drained and drawn-out, and he knew that if he were to take his hands off the wheel, they would shake. "Gaby," he said with a sigh. "If I don't have to do that again, I won't miss it."

Steam Bird had landed.

The crash trucks soon delivered the crew to the slit trenches, where a heartfelt reunion took place between Bob and Betty Lou. Bob Muth next kissed his older children and swept his younger daughter into the air.

"And here," he said with a mighty grin, "is Cordelia herself, my very own tortient!"

Alice planted a heavy, wet smack on her father's lips, then hugged him to whisper in his ear, "I didn't really mean all that, Dad. It was just the part of the whole scam that I thought up."

Her father set her back on the ice and waggled a finger. "Oh, no, you don't get off that easy. You just fall down with consumption into that green grave and see what *I* do!"

Everybody laughed at that, and then the president let Alice pin the Distinguished Flying Cross on her father. Next, he pinned one on all the others, spending some time chatting with Captain Jackson to make sure the TV footage of that would be good.

By now, *Air Force One* had landed again, and Shamus O'Connell was about to make his statement about the canonization of the *Langley* and the neutralization of Ice Island Three, when a protocol person urgently whispered in his ear.

"What ... *more* medals?"

The aide continued to whisper, thrusting a pile of metal boxes at the president.

O'Connell sighed and turned with a half-smile to Colonel Muth. "Colonel," he said, "it seems that when the Congress wrote the establishing legislation for the NASA astronaut medal intended for anyone who completes one or more orbits around the earth in a spacecraft, they inadvertently used the term 'circle' instead of 'orbit.' " The president paused and shot a grin at Happy Jack, completely lost in a furry parka. "Hell, Jack, they just didn't know there was any difference between circle and orbit. Going around is going around, right? The education of congressmen in this country is a scandal!"

He turned back to Colonel Muth and took the medal out of the top box, looking around at the Muth family. "Anyway, Colonel, within the present meaning of the act, you and your crew are entitled to one of these. Let's see,

Alice did one. Who wants to pin this on their father?"

Bob Junior looked over at Melissa, then grinned and stepped forward. "Mr. President," he said, "I think medals that are given by mistake are the best ones of all. I'll be proud to pin that one on you, Dad."

XIII

A few weeks after the president announced the U.N. stewardship of Ice Island Three and the frozen apotheosis of the *Langley*, the Moosefoot base was shut tight, the other two planes dismantled, and the men reassigned or, in the case of most of the officers, retired at the convenience of the government.

So that next summer the Muth family went off on holiday to Wales, where various small steam railways still chuffed tourists around the Welsh scenery. What started as a mere jaunt turned into an extraordinary summer of engine driving. They were recognized at once on the Festiniog and spent a full week driving and firing. Riots and fights soon developed around Portmadoc when every tourist in the west country wanted to be on the trains driven by the famous Colonel Muth and spouse, or one of their talented children, undisputedly the "first family of steam" in the world.

The family decided to split up so that other lines might benefit. Bob and his wife went off to Tallylyn, Bob Junior to the Dart Valley, while Melissa and Alice decided to stay a few days more at the Festiniog. Alice especially loved the double-Fairlies, which had two independent engines back to back so that you could really get them driving up the bank by juggling the two regulators, keeping everything just below wheel-slip. Best of all, Melissa fired from the other side of the boiler and couldn't keep screaming about how Alice had the cutoff set too high.

Eventually, all the railways were visited and all the engines driven, and the end of a cloudless, bright English summer came at Bressingham when British Rail brought *Mallard* briefly out of her museum berth and Colonel Muth and Lord Brackenburse, minister for transport, alternated driving and firing the big green engine. As Bob Muth said later to Captain Jackson, "We didn't get her much over sixty, Gaby, but they can have my right arm, anyway!"

So the perfect summer passed on to a cool fall. The little railways shut down for the year. The last steamboats ran on Lake Windermere, and the coda of that wonderful summer of steam came in October at the annual banquet meeting of the Stephenson Society. For Colonel Robert Muth, USAF (ret.) was to be made the president of the society and to receive a special gold medal bearing the bust of Robert Stephenson and the simple legend *"Locomotion No. 1 — Samuel Langley,"* and the dates.

The affair turned out to be one that everyone wanted to attend, so the society was finally faced with hiring a huge old guildhall in the Westminster section of London and having the thing catered by three different food services.

The hall was old and shabby, but they decorated it up with Union Jacks, rail posters, and bunting. The head table stretched along one entire long wall, up on a temporary platform, while out in the gloomy, huge barnlike room were dozens of other tables and hundreds of members of the society, their friends, and guests.

The men at the head table were mostly in black ties and boiled shirts, the women in long dresses — although Congressman Hazelton decided that Emmeline's now-famous engineer's outfit, Tidewater Northern logo and all, would be entirely appropriate. Everyone who was anybody in steam was strung along the head table with Nate, Emmeline, and the Muths; Lord and Lady Brackenburse; Lord Rothmare, chairman of Main Line Steam Trust, and Lady Rothmare; General and Mrs. Beardsley; the crew of the *Langley*; a gaggle of high-level British civil servants and young, titled wastrels whose hobby happened to be steam; and several other distinguished, ancient, nodding C.M.E.'s from other days.

This was all far too stuffy and highbrow for Melissa, so she dashed down on the main floor, dragging Alice with her, and found seats in the midst of the old top-link drivers in their shiny, pressed blue suits and thin ties. These old men were run in from the nursing homes and retirement cottages once a year to have supper and tell each other — or better, the young clerks and hobby nuts — lies about engine driving.

When a friendly nursing sister asked one of the old gaffers the next day just what Melissa Muth really looked like to so impress him, the old gentleman could only smile and repeat the single word "Splendid!" over and over again.

In fact, Melissa had on a neck-to-toe flesh-colored, semitransparent bodystocking, tantalizingly decorated here and there with pastel butterflies. Over this she wore a single long sheath of pure-white macrame panels, slit to both sides of her waist, and with far more open holes than there ever was rope. This extraordinary dress, dug out a Bond Street boutique after days of search, fitted so cunningly that as Melissa shifted her hands, head, or torso, one had the impression of an amazing moving moire pattern of interacting breasts, butterflies, braided string, and downy, delicious arms.

Many of the retired drivers simply sat paralyzed and grinning, but though they were all old, they were by no means all feeble. Driver Farrington of Doncaster Shed, who had driven the queen several times and who was still called out to drive on steam-loco fan trips, realized it was largely up to him

to keep this remarkable young woman interested and talking. He looked in dismay about the big table at the open, toothless mouths, the riveted, if rheumy, eyes.

"Aye, lassie," he said in his best last-driver-in-steam voice, "but I've driven plenty of Gresley A-4s in my day, and never had one over 30 percent cutoff, even doing a hundred."

"That's not the point, Driver Farrington," said a serious Melissa. "The Gresley derived gear simply has to go sloppy at high speed. Don't you see? It's driving at that steep angle from the forward axle, while the outside Walshaerts are coming off the middle drivers...." This explanation was all accompanied by a kinematics demonstration using both her hands and arms, and, almost at once, the several tables around the one holding the old drivers also fell into transfixed silence.

The oldest driver at the table was wrinkled, silent Billy Bayne, so ancient that no one knew really how old he was, although some claimed he had fired a Stirling Single in the London-Scottish train races of the late nineties. The men always debated whether to bring old Billy, for nobody was sure whether he took much of anything in, but in the end they always shook their heads and took him along.

Now he suddenly sat up and his eyes came fully open. "Miss Muth," he said slowly but very clearly, "when I drove on the Highland Railway, the summer butterflies would fly up from those fields of heather like a carpet of living flowers hanging over the purple sedge."

The other men turned, astounded, to stare at old Billy, but Melissa clapped her hands in delight, then sighed and smiled warmly at Driver Bayne. "How lovely to drive on the Highland!" she said at once. "And the engines were so handsome."

"Aye, my dear," said Billy Bayne alertly. "And the hills steep. I was Drummond's test driver on the big, new engines then."

Driver Arthur Mock, well over eighty but usually the one who accompanied Billy Bayne to these affairs, turned in astonishment.

"You knew Dugald Drummond, Billy?" he said. "Lord, I never knew that!"

"Aye, and his brother, too," said Billy. "As to three-cylinder gears, Miss Muth, the problem was always keeping them working at the same cutoff."

"Exactly," said Melissa. "But they partly solved that problem on the American Hudsons...." And again the explanation went forward with much gesture and movement.

Old Driver Mock sat with the others in a daze of wonder, and always after that time he told everyone that the Stephenson dinner that year was the most exciting of his life. This was an assertion of some note, since in 1944 Mock's train on the Southern main line took a direct hit from a V-1 flying bomb, and the engine rolled over three

times coming down the bank.

But Alice, who in her heart of hearts thought valve gears "Boring, boring, *boring!*" was deep into a far more contentious discussion with young master Freddie Farrington, grandson of Driver Farrington and attending his first society dinner. This slender youth was a year or so older than Alice and had a long, gentle face with a shock of straight blond hair falling over wide blue eyes. These eyes now glittered in anger at pretty Alice, as Master Farrington delivered an opinion. "Well, it's completely *stupid,*" he said with dripping contempt, "to say that the *Hiawatha* service was better than *Flying Scotsman* just because it was a little *faster!*"

"It was a *lot* faster!" snarled Alice right back. "And the trains were bigger, and the service was better! So there, Mr. Stupid!" And unable to contain her anger, Alice stuck out her tongue at Freddie Farrington and made a monster face at the same time.

Master Freddie was unimpressed. he stared at her with a lofty expression. "I don't see how you think you can win an argument by making yourself completely ugly," he said in a sarcastic voice.

The perfectly evident logic of this remark only enraged Alice all the further, and her eyes grew thin, her lips set. "If you say one more stupid, wrong thing, I'll bounce this hard roll off your stupid head!" And she hefted a very hard roll out of the breadbasket.

Young Farrington sniffed, unafraid. "Right! Well, you Yanks think you can make anybody do anything by threatening to throw things at them, don't you? And if the *Morning Hi* was so bloody wonderful, where is it now, Miss Muth?" He glared at her and curled his lip. "The fact is, the *Scotsman* is still running. Our trains are tremendously faster and better than yours are. And the French trains are better. The Swiss trains are better. The Danish, Norwegian, Swedish, and Russian trains are all better. The...."

Cutting, hurtful, bitter words, and Alice clenched her teeth in unbridled rage, thinking what a fine target Master Farrington's large, high white forehead actually made.

But before British-American relations, or the world of steam, had to suffer such a setback, Driver Farrington managed to wrench his attention momentarily away from Melissa, who was now sinuously explaining why continuous-contour-cam gearing was best for the one-hundred-mile-an-hour running, and lean down to his grandson.

" 'Ere, 'Ere, Freddie. Don't say such hard things to the young lady, boy! Miss Muth is a real driver. Why, they say she took that double-Fairlie up the bank out of Portmadoc as slick and tidy as any man on the line, plenty of times."

Something hard and prickly melted instantly inside Freddie Farrington. His eyes grew larger and soft and his high

forehead wrinkled in astonishment. "You ... drove the Fairlie ... on the Festiniog?" And as he looked at Alice, Freddie realized at once that she was not only tremendously pretty and bright and lively, but that she loved the very same things that he loved, no matter where they ran. He smiled tentatively, and dimples appeared in his now-pink cheeks.

"Miss Muth ... Alice," he said in a small voice. "I'm going train-spotting down at Euston tomorrow. *Evening Star* is taking the *Scotsman* out. Would you ... well, like to come down with me?"

For a brief moment, Alice, who had instantly realized that her triumph was total, contemplated driving a knife of words into his gentle heart. But as she looked at Freddie Farrington, she suddenly wondered why she would ever want to hurt somebody who really loved the same things she loved, when there were so many hurtful people around who didn't love anything at all. Her heart melted then, and she dropped the roll back on her plate and nodded. "I'd love to see *Evening Star*, Freddie," she said in a suddenly shy voice. Then she smiled like a burst of sunshine. "If we can get Dad to come, they'll probably let us drive her up the line a ways."

Freddie's mouth fell open and his heart turned over in a giant, sudden thump. "*Drive* her? You mean on the footplate?"

"Sure," said Alice. "Well, actually Dad would drive, but he always lets me have a go at it, even on the big ones."

Freddie could not immediately answer, but his shining face and sparkling eyes said all that Alice needed or wanted to know about Freddie Farrington.

But the banquet finally moved on to the dessert, coffee, and then the speeches. Colonel Muth was to be introduced by Lord Rothmare, but it soon became evident that this old and distinguished worthy intended to treat the society to a considerable history of steam before bringing on Colonel Muth.

Lady Rothmare, a white-haired old lady of disguished bearing, leaned over to Betty Lou Muth and her eyes crinkled as she smiled. "Well, dear, they really are just like little boys with it," she whispered, then winked.

Betty Lou smiled back. "Oh, yes, that's true. But it does give them so *much* pleasure, Lady Rothmare!"

The old woman thought a moment, then nodded. "Like that other thing!" she said positively. "Well, I guess we just have to learn to enjoy it along with them."

Betty Lou nodded. "Like that other thing, Lady Rothmare," she said, and the two women chuckled heartily together.

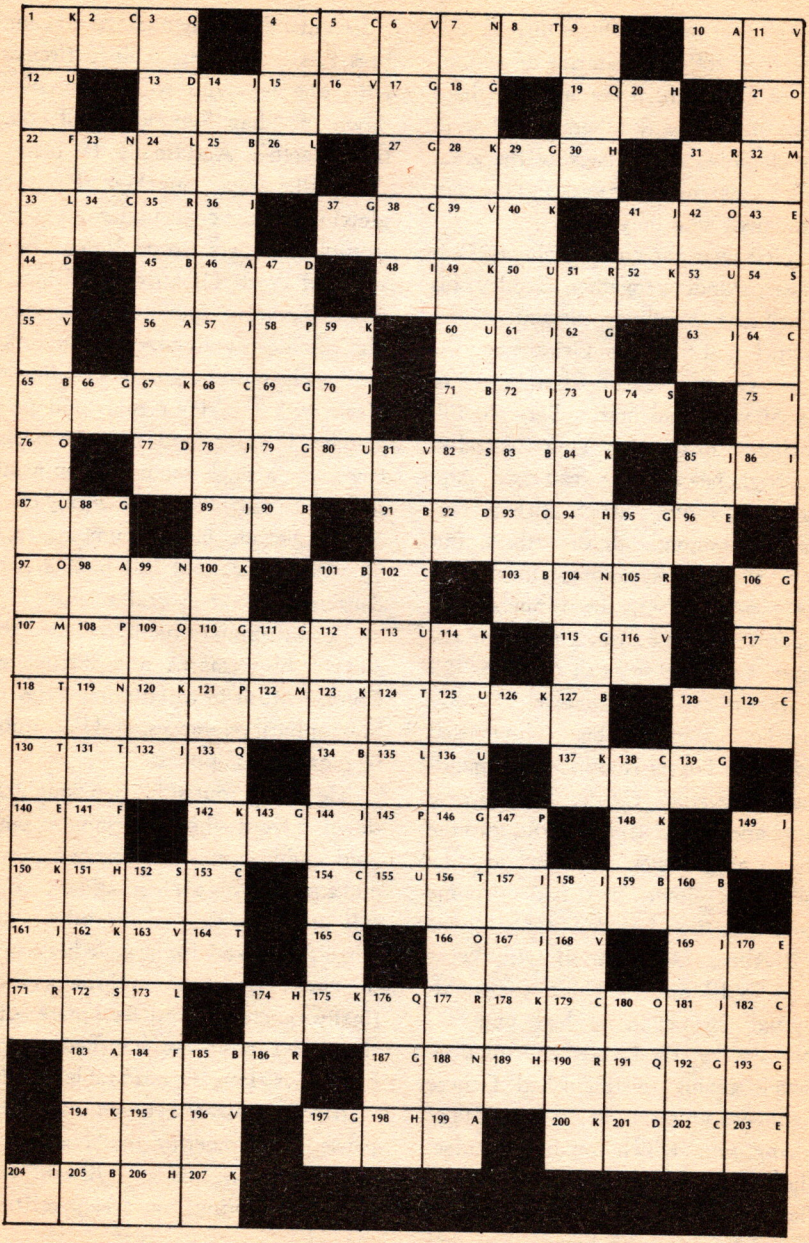
But Lord Rothmare was finally approaching the time of the *Langley* in his remarks, and Bob Muth prepared himself to rise and give his speech. He

looked out over the huge throng, sipping their coffee and staring up at him. All of a sudden, it seemed that there were others, many others, standing in the shadows at the back of the great hall. He narrowed his eyes and knew in a moment who they were.

First were the chief mechanical engineers standing together: Gresley, his moustache bristling; elegant André Chapelon of the Paris- Orleans and the Nord; George Jackson Churchward in his cutaway and high collar; old Bill Buchanan of the New York Central in a derby, chewing on a dead cigar. And more and more: Patrick Stirling, Dugald Drummond, all the others. But now, standing in amongst them were the top-link men, the runners, and shadowy behind them were their engines. Duddington with *Mallard;* Bill Sparshott with *Scotsman;* stubby Charlie Hogan and his high-wheeled lady, *999;* Driver Ruddock with handsome *Tregenna Castle;* and always more and more, stretching out into the gloom at the back. It wasn't just the loco men, either; they had *all* come back. The tiny, bearded Stanley twins and Abner Doble stood with keen-eyed Fred Marriott. There was squatty, ugly Brunel in his high pug hat; John Fowler, the farmer and traction-engine genius; distinguished George Stephenson himself on the footplate of *Locomotion,* which ran like a horse. The shadows spilled everywhere. There were so many! The brakie with his hand gone, the hogger lost and frozen in a three-day blizzard on Cumbres Pass, the moustachioed fireman with one leg who rode a runaway down off Shap Summit — all come back together. And finally, far behind them all, huge, hunched, his eyes glowing like the coals under one of his iron-plate boilers, stood Vulcan himself: old Watt, his lined, hard face a mask of resolve, and standing around him, the keen young men of the Soho works, their sleeve guards and fingers black with ink, their rules and pens clutched in eager hands — and if he listened, for a single moment, Bob Muth thought he caught the slow, steady chuff of the gigantic lifting, pumping, and blowing engines that had built a rich, dangerous, exciting world of steam.

Lord Rothmare finally reached the end of his remarks and introduced Colonel Muth in a flattering series of biographical references, and Bob stood to thunderous applause.

He grinned out at his two daughters down in front who were clapping with wild enthusiasm, then reached down and squeezed his son's shoulder on one side and his wife's on the other, and when she looked up, he gave her a loving wink. He cleared his throat as they finally quieted. "Lord Rothmare, distinguished guests" — he turned to look both ways along the head table — "and all friends of steam everywhere...." He paused, remembering the shadows at the back. "... and every*when!* My crew and I bring you greetings from the *skies!*"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194 K 195 C 196 V 197 G 198 H 199 A 200 K 201 D 202 C 203 E
204 I 205 B 206 H 207 K

Acrostic Puzzle

by Rachel Cosgrove Payes

This puzzle contains a quotation from a science fiction story. First, guess the clues and write the word in the numbered blanks beside the clues. Put these letters in the matching blocks in the puzzle. (The end of the line is not necessarily the end of a word. Words end with black squares.) If your clue words are correct, you will see words forming in the puzzle blocks. If you can guess some of these words, put the letters into the blanks for the clues, over the appropriate numbers. This will help to guess more words. The first letters of the correctly worked clues spell the name of the author and the title of the sf work from which the quotation is taken.

A. THE ____, Stallman.

98 199 183 10 56 46

B. Fantasy award contender, (three words).

205 160 185 25 91 9 65 45 159 101

83 127 103 90 134 71

C. ____ RITORNEL, plus author (four words).

154 68 5 38 34 153 179 195 102 2

138 202 64 129 182 4

D. Attach.

77 13 92 201 44 47

E. Insipid.

203 140 170 43 96

F. Ballantine or Watson.

22 184 141

G. Harlan's *tour de force*, (seven words).

165 192 17 115 187 18 146 66 29 139

27 197 95 111 106 143 62 88 193 79

110 37 69

H. What Doro does (two wds.)

198 20 206 174 94 30 151 189

I. Wrote EYES OF FIRE.

75 204 48 86 15 128

J. Tiptree's novel (six words).

___	___	___	___	___	___	___	___	___	___
158	41	89	61	14	161	144	57	78	169
___	___	___	___	___	___	___	___	___	___
157	36	85	72	63	149	167	181	132	70

K. Campbell award winner, author and work (six words).

___	___	___	___	___	___	___	___	___	___
175	28	150	40	148	114	100	49	207	67
___	___	___	___	___	___	___	___	___	___
162	142	52	137	112	178	120	200	59	194
___	___	___	___						
1	123	126	84						

L. Edmond Hamilton's wife, first name.

___	___	___	___	___
33	173	24	26	135

M. Tide.

___	___	___
32	122	107

N. Recover life.

___	___	___	___	___	___
99	104	23	119	7	188

O. Goulart's specialty.

___	___	___	___	___	___	___
97	42	21	166	180	93	76

P. Non-metric measures.

___	___	___	___	___	___
108	117	145	121	147	58

Q. Nebula Grand Master.

___	___	___	___	___	___
109	133	191	19	3	176

R. Bradley's planet.

___	___	___	___	___	___	___	___
186	177	31	51	171	190	35	105

S. Wrote GOBLIN RESERVATION

___	___	___	___	___
54	82	74	152	172

T. GOD ____ OF DUNE.

___	___	___	___	___	___	___
8	164	131	118	156	130	124

U. Lovecraftian reverberations, (two words)

___	___	___	___	___	___	___	___	___	___
136	53	12	125	113	73	50	155	80	87
___									
60									

V. Body switching (two words).

___	___	___	___	___	___	___	___	___	___
168	39	6	163	55	16	116	81	11	196

Answer to appear in June issue.

Fantasy & Science Fiction

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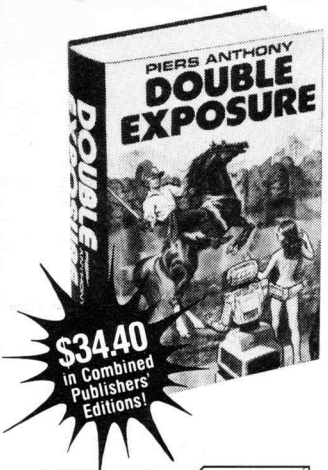

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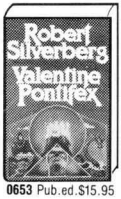

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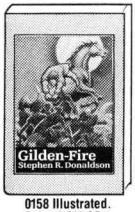

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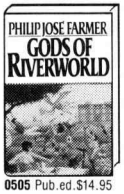

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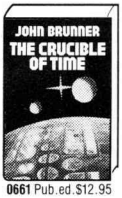

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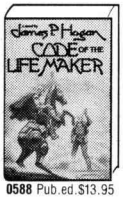

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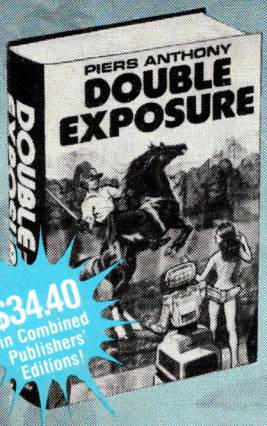

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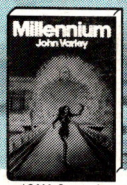

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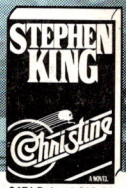

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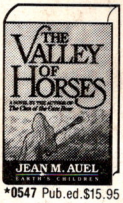

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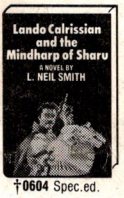

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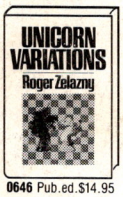

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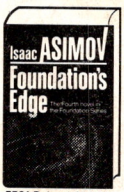

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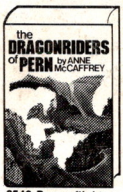

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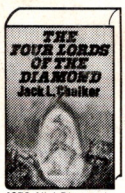

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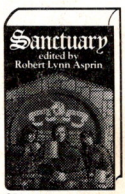

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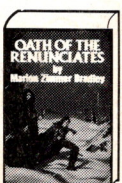

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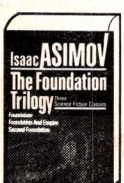

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